Vol. LIV.
New Series Vol. 7, No. 6.

FEBRUARY, 1919.

$3.00 per annum
Foreign, $3.69; Canada, $3.25
Single Copies, 30 cts in U. S.

JOURNAL
OF THE
American Veterinary Medical Association

FORMERLY
AMERICAN VETERINARY REVIEW
(Original Official Organ U. S. Vet. Med. Ass'n)

EDITED AND PUBLISHED FOR
The American Veterinary Medical Association
by W. H. Dalrymple, Baton Rouge, La.

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The Journal of the American Veterinary Medical Association is issued the first of each month. *Manuscripts and copy for insertion should be as nearly perfect as possible for the printer and should be received by the tenth of the preceding month to insure insertion in the next month's issue.* Volumes begin in April and October.

Communications relating to publication, subscriptions, advertisements and remittances should be addressed to Journal of the American Veterinary Medical Association, Baton Rouge, La. Matters pertaining to the American Veterinary Medical Association and Membership should be sent to Dr. N. S. Mayo, Secretary, 4753 Ravenswood Avenue, Chicago, Ill.

Entered as Second Class Matter, October 26, 1918, at Baton Rouge, La., under Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Sec. 1103, Act of October 3, 1917; authorized October 26, 1918.

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The American Veterinary Medical Association is not responsible for views or statements published in the JOURNAL, outside of its own authorized actions.

Reprints should be ordered in advance. A circular of prices will be sent upon application.

VOL. LIV., N. S., VOL. 7. FEBRUARY, 1919. NO. 6.

PUBLIC CONFIDENCE.

Occasionally one sees the statement that such and such a commercial enterprise has been "built by public confidence."

The confidence of the public is, obviously, one of the greatest and most valuable assets that any business organization could be possessed of, as without it, failure is almost inevitable.

To secure this confidence, however, the organization must be more or less perfect in each of its various departments and relations, not only as a whole, but all down the line to the individual unit—the subordinate employee.

To maintain this confidence, the concern must be known for the business acumen of its heads; for the strictly business methods employed; and for its absolute integrity in all its business relations.

If, therefore, the success of great commercial enterprises is dependent upon the confidence of the public, which it is, and which those who have succeeded in this way have a perfect right to boast of, there seems no reason why a profession like ours should not have a similar boast to make, or, at all events, keep constantly aiming in that direction; for if any body of men requires this confidence, and especially of the stock-owning pub-

lic, on which to build for the future, it is our own profession, collectively and as individuals.

The question arises, therefore, are we using our best efforts to secure this confidence; The times are changing fast—in fact, have already changed—and a new era is upon us; and reconstruction problems are due to be discussed and acted upon.

The results of the late war have set people thinking along more advanced lines in the production of animal life; how this may be accomplished through greater economy, not merely increased production numerically, but of superior quality, and through greater saving of animal life from disease, both of a non-contagious character and those plagues which periodically decimate their flocks and herds. Stockowners will require, and are already looking for, better professional service to aid them in the accomplishment of their purposes. Are we preparing ourselves to meet this greater and higher demand? Or, in other words, are we beginning to realize that more will be expected, and demanded, of us as a profession in the future than has been the case in the past; that our success depends upon the confidence of the public, and to secure which will mean, among other things, more thorough education in the various branches; closer fraternal relations; and unquestioned integrity in the case of each and every member? For, to quote the words of the "Immortal Bard":

"To thine own self be true,
And it must follow, as the night the day,
Thou canst not then be false to any man."

Let us hope the time may not be far distant when we can point with pride to the fact that the Veterinary Profession in America, whose aims are as lofty as those of any of the other so-called learned professions, has been built and maintained by public confidence, and that it stands like a rock on that splendid and lasting foundation.

PERMANENT ADDRESSES URGENT.

In order to save complications and a large amount of extra and unnecessary work in both the office of the Secretary, in Chicago, and that of the Editor of the Journal, in Baton Rouge, La., besides avoiding considerable disappointment on the part of members and subscribers through not receiving their Journals, it is extremely urgent that everyone who has been absent from home on military duty, or otherwise, should, at the very earliest

possible moment, now, send in his permanent address, so that the records and mailing lists may be made as nearly correct as possible.

It is important, also, that all members who have not paid their 1918 dues should do so at once to the Secretary in order to avoid missing their copies of the Journal. We realize that, to the member, such a small matter as sending in a postcard to have his address corrected, is very easily deferred to a "more convenient season," but to those of us who have to try to "keep the record straight," it often amounts to a tremendous amount of clerical work that might be avoided. Won't our members and subscribers please attend to these little matters at once, for their own sake, as well as ours? It will be much appreciated.

"DON'T THINK, BUT TRY; BE PATIENT AND ACCURATE."

One of the serious failures in accuracy of writing arises from the feeling that one will be heard for his much speaking. Many a writer has failed to make his points understood through the error of diffuseness. Many a physician has worked out a valuable point in research, in therapeutics, in technique or in clinical observation, but has utterly failed to impress it upon others. Instead of presenting his fact in definite and concrete form, he has smothered it in padding and buried it in a seven-column article. If a writer wishes to make a point he should present it definitely, without extraneous matter which will befog the mind of the reader and distract his thoughts from the central idea.

This is well illustrated by the course taken by Jenner upon the advice of John Hunter, referred to above as a quotation. After prolonged study and observation, he wrote a book upon his investigations of "Cow-pox As It Appears in the Western Counties of England." It was not a 1,200-page quarto volume, but a little book of 21 pages, of which one of the rare existing copies may be found in the library of the New York Academy of Medicine. He described distinctly and without camouflage one of the greatest discoveries in the history of medicine, and left a name equal in honor to that of Hippocrates and Galen. He did much; he wrote little. The value of medical writing is assayed not by how much but how good.—N. Y. State Journal of Medicine.

DISCUSSIONS ON PAPERS AT PHILADELPHIA MEETING.

ARMY VETERINARY MATTERS.*

Major JNO. P. TURNER.

Major Turner prefaced his paper as follows:

Gentlemen: Any subject relating to army service at present cannot be made just as interesting as we would like, because there is a chap in Washington called the Censor, and that Censor puts a few tucks in your lips, and you may have a lot of thoughts coming to you, and interesting matter you would like to bring up, but you don't; you bring up what the Censor passes. I would state that this paper has been censored. That may account for its uninteresting qualities. At the camps where divisions are located each has its divisional meat inspector.

I can't pass over this section without making a few remarks about the Camp Training School. It is doing very, very good work; and if any veterinarians have the opportunity of going through that camp, and can stop off and see the instruction given by these camp instructors, and three veterinary officers, out in the field drilling 300 men, and drilling them as well as line officers—you would have heard some strong commendative statements. There is always a horse present. Every point is illustrated. It is a practical course. Men are taught there to be good veterinary soldiers; and I am glad to say there is a disciplined camp there. An officer said, "If you want to see a sanitary camp come over to the Veterinary School." (Applause.)

The Divisional Veterinary Department is at work from morning to night; there is horseshoeing morning, noon and night; and special attention is paid to the proper fitting of saddles and harness. Horseshoeing receives a great deal of attention in the army.

Regarding the success of the Veterinary Service Corps, of course, we judge any service by its success, I can say that the veterinary service is functioning well. I don't think we can take statistics entirely for the success or failure of any organization;

*See November Journal, page 126.

but statistics show that last December we had a death rate of 44/100, whereas in June we had a death rate of .071, or thereabout. The non-efficient animals last winter averaged about 20,000, while today they average about 12,000. We are not patting ourselves on the back with any great plaudits or credit. We have been doing some good work, but everybody has been helping. The Bureau has been helping us clean up corrals at points of shipping. But no experienced officer looks for this low rate to continue next year if we start buying. We ceased buying since last December—also, weather conditions have helped. So, we are not pluming ourselves on this very low death rate, because there has been practically no buying of animals, and the animals bought last winter have become acclimated. The diseases we had last winter were largely traumatic injuries which entered into the service, and the diseases were largely climatic. In the Eastern Zone we have had diseases mostly due to the invasion of the necrotic bacillus. With some recent training and recent experience the veterinary officers are getting I believe they will be able to handle this infection very much more systematically than they ever have been able to handle it before. (Applause.)

DISCUSSION.

DR. KINSLEY: I don't know that there is anything to discuss on Major Turner's paper; but I think the Association is deeply indebted to Major Turner for giving us such an able paper.

A MEMBER: We are very proud of the Veterinary School at Camp Meade. I have had the privilege of visiting the schools of the state for sixteen years, and I would say that we have never had the privilege of seeing such a training school in the State of Virginia. When we went there they gave us a real Wild West Show. It is only a few miles from Camp Lee. The Major has not done it justice. He tells you a few things about it, but you can't appreciate it until you visit it.

DR. BERNS: The detailed report we have received and had the privilege of listening to, by Major Turner, is extremely gratifying to men who have the interest of the veterinary profession at heart. To me it is most pleasant. Only a few years ago in the Army the Veterinary Corps amounted to nothing. Now we have a splendid veterinary establishment in the Army of the United States. To me it is most valuable.

DR. COOLEY: This valuable report by Major Turner has impressed me very greatly. It shows to me that the work these men

are doing has put the profession on the map as a one hundred per cent profession in trying to do work for our great country. (Applause.)

DR. PIERCE: I listened with considerable interest to Major Turner's address, and from what I have seen of the military camps in our district he has described them very well, and they are carrying out his instructions very well. He omitted one expression, one thing I consider fairly essential—he did not say a word about driving. At one camp, during the few hours I was there, every four-line team that passed me I looked over to see how the driver was holding his reins; and every man had the lines bunched up in his hands, and let the mules take the initiative. From what I saw they certainly had not the proper instruction in holding the reins. I did see one boy—I did not have the chance to ask where he was from—but he appeared to be a four-line teamster.

I was in the Army about the time Brother Berns referred to, about thirty-two years ago. I remember well that we had at that time some drivers. It is not common in this country any more to see four-line teams; and possibly my love of anmials leads me to insist upon proper driving of them, and proper hitching them up; but no service team goes by me but what I look at it to see how the driver holds his reins. If he holds them properly he is a driver; if not, he is only good at drawing his salary.

THE B. A. I. AS A WAR AUXILIARY.*

JNO. R. MOHLER.

Dr. Mohler introduced his subject as follows:

Mr. President, Fellow Members and Friends: I fully apprecite the honor of being invited by Dr. Preston Hoskins, the Secretary of the Section on Sanitary Science, to speak to you a few moments this morning on the war activities of the Bureau. Particularly am I pleased to follow my military colleague, Major Turner, and to tell how the civil veterinary forces of the Government are attempting to supplement and assist military veterinary forces of the Government. (Vociferous applause.)

*See November Journal, page 96.

DISCUSSION.

MAJOR EDWARDS: It becomes my extreme pleasure as a representative of that which existed before the emergency to extend on behalf of the Army the appreciation that we feel for the Burau of Animal Industry in the work it has done in helping out in war measures and stimulating the countrywide interest that is now being expressed in the veterinary profession, especially in the Army Veterinary Corps. I have been an employe of the Bureau in the past, and have had now eight years with the colors; and during that time the Bureau of Animal Industry has ever been before me as a guiding star—its professional viewpoints, its standard of service and the good it has been doing at all times. Looking backward, I believe that the spirit of the Bureau of Animal Industry has been as great a factor in the establishing of the present-day Army Veterinary Corps as any in the United States outside of the American Veterinary Medical Association.

It is to you young men—and not entirely all young men—representatives of the Army veterinary profession at this time that I want to urge coöperation. I want to predict for the future closer brotherhood; and a professional endeavor in reëstablishing for the future military needs of the country a service with the Bureau of Animal Industry that will absolutely coördinate; so that we will never again be caught without an adequate supply of remounts and a meat supply that will show symptoms of being disturbed at almost the first flash of engagement.

It is with great pleasure that I thank Dr. Mohler for the paper that he has read to us, showing the wonderful work being accomplished by the Bureau of Animal Industry in assisting us, the military men, in accomplishing what lies before us; and with him I say, "God speed the day when all of the members of the Bureau of Animal Industry that have been sacrificed to military service will come back noble heroes." (Applause.)

A MEMBER: It seems to me that not many of us realize what the Bureau of Animal Industry really does. I have been able to get very close to them because of the geographical situation, you may say, in Virginia. I don't know what the people would have done without their assistance. I know it has not been very long since some one spoke of the debt they are owing. Many of you are much older than I in experience, but we have got to get together and take care of the Bureau of Animal Industry.

We have got to take care of the members of the profession. So far as Virginia is concerned, we are willing to do our share toward it, but there must be some effort made in Washington to take care of these men. You know what Dr. Hoskins and some others have done from an army standpoint, but we have not all done our duty in this respect. And if Secretary Houston ever did anything of value to the Bureau, he did it when he appointed Dr. Mohler as Chief. I pledge Virginia to do everything we can to help to get some increase in salary for the Bureau men. They are not paid what they should get. We have a number of them working in Virginia on hog cholera and some working for the eradication of tuberculosis; and I don't know what we would have done if it had not been for the men working on glanders. You know we have remount stations down there, and we could not have handled the situation without the Bureau of Animal Industry.

Every one is working, but nobody has gotten busy yet to help and see that the men working in the Bureau get the proper compensation. I pledge you the help of Virginia. (Applause.)

DR. LOWE: Mr. President and Fellow Colleagues: After listening to Dr. Mohler's able address covering the various branches and the activities of the great Bureau of which he is the executive head, it occurs to me that we should not lose sight of another branch, another feature of his work. I feel that we are greatly indebted to Dr. Mohler for the great increase in membership in this Association at this meeting. If I am not mistaken, he is largely responsible for the lineup of veterinarians in the Bureau, that are knocking at the door of the American Veterinary Medical Association. And the man who has done this certainly must have vision. I think I can say that we feel that every veterinarian who is active in the Bureau of Animal Industry should be a member of this great organization, and it is certainly very gratifying, Mr. President, to us all to receive and to welcome so many Bureau men as members of the American Veterinary Medical Association. (Applause.)

PRESIDENT TORRANCE: Before passing on to the next item on the program I would like to say that we have with us today a British officer who has had great experience in dealing with some of the problems occupying the minds of the Chief of the Bureau, and some of his officials, especially as to influenza or shipping fever in horses. Col. Olver in conversation with me last night gave me some particulars as to their present method

of combatting this trouble, and if he will oblige us at this time I am sure it would be of great interest to the members present. (Applause.)

LIEUT. COL. A. OLVER, of the British Army: Mr. President and Gentlemen: This is quite unexpected, and I am afraid I am not ready; but at the same time I am very glad to add my small word to what has already been said as to the valuable work being done by the Bureau of Animal Industry, which has been of great assistance to us in handling the considerable number of animals we have to handle. When I first came to this country a year ago the proportion of disease in the mounts we purchased was appalling. I made a few remarks in Kansas City in which I said we hoped, in the course of time, to do something with the serum work, but at the same time I expressed the opinion that what we had to allow for at that time, at that state of our knowledge, was sanitation; and I don't wish anything I might say today to interfere in the least with the appreciation of the value of sanitation. I feel that the results we are getting now are undoubtedly to a large extent due to the work which has been done by the Bureau and by the United States Army inspectors in connection with the control of infections from this so-called influenza. Personally, my own view is that the term "influenza" applied to this disease is not the one I should use. From the observations which we have carried out during the last year and from observations which we carried out in England before I came out here from the large mass of material in England and France, the whole of that work points, I think, to there being two distinct conditions, one being what I should call "influenza," due to a virus, which experiments give evidence that it can be spread very rapidly, for instance, by infected stalls and so on; and the condition with which we deal here in this country, wherein we have no evidence whatever of any direct conveyance in that way.

From the condition under which one has to work in organizing a thing of this kind without previous notice we have had to associate our pneumonia condition with other cases, which has been unavoidable; but the evidence of direct infection running through animals suffering, for instance, from wounds—we never have very much of that, and careful statistics bear out that there has not been much of this condition. Shipping fever, I should say, is the best term; and shipping fever, I should say, is the result of not only shipping but of any other condition which reduces the vitality of the animal, and to certain organisms. We

never had any evidence of it running through stages in the way that this infectious influenza runs through stages. Every few years we get an outbreak of so-called influenza, which runs through a district like fire, and nothing can stop it. We have had nothing like that.

By taking temperatures of every animal for the first, four, five or six days after they arrive we find we still get 60, 70 or 80 per cent of those animals with a high temperature, and they go through some form of sickness; what sickness it is depends to some extent on the kind of organism and the condition under which the animals have been brought here. If the vitality of the animals is great enough, they do not resist the fever, but do resist it progressing on to something worse.

Last year I said we had met with considerable success with defibrinated blood. Captain Gregg's system you have heard a great deal about; and, of course, it has done a great deal of good. We have records of many thousands of animals, and the result is that the mortality amongst those animals is considerably less than one-third of what it is in the other types where serum work is not done. Those figures are so accurate that you can't get away from them. They show that what is classified as serum work has done an immense amount of good.

Captain Gregg tried to immunize the blood of the animals by injecting blood from animals which had suffered from the specific disease with which these animals were threatened. Defibrinated blood was used with the most satisfactory results. As Captain Gregg himself described it, it was an experimental form of treatment—that is, he had no knowledge of the definite organisms he was dealing with. Our opinion, however, is that the main organism from which he got his result is what we call "bacillus X." That was the organism which Captain Gregory of England recovered from this form of fever.

To extend such a system as that all over the country and place it where you have not the care necessary in carrying out the technic, would prove liable to cause certain difficulties. Shortly after I arrived in this country, a year ago, working with the special medium that Lieut. Col. Watkins Pitchford had used in England, I was sent with Dr. Gregory to Newport News, to recover what we could from the blood of infected horses. We recovered various streptococci, and among them the same organism, or similar, to what Captain Gregg had called "Bacillus X." It undoubtedly has very close association with the shipping fever

and pneumonia. In a series of observations we have been able to recover this organism from the blood stream either in a pure culture or associated with cocci of different kinds in sixty per cent of the cases. And another fact—so far it is the only organism we have been able to obtain which reacts to the agglutination test.

Then, having recovered the organism, we proceeded to make pure cultures of it, and then endeavored to hyper-immunize with pure cultures of this organism associated with streptococci and staphylococci, on which a certain amount of work had been done previously by Captain Gregory at Newport News. These streptococci and staphylococci known to be associated with organisms of this kind. We found that the ordinary recovered animal from an attack of pneumonia or shipping fever would agglutinate at a dilution of something like 1 in 80; it varied from from 1 in 80 (in horses it was frequently nil), in mules it varied from 1 in 80 or 1 in 60 up to 1 in 300. We have been able to get it up to 1 in 5,000.

It is used in two ways: as a preventive and as a curative. The result of the test as a preventive was, and that was shown clearly, that for a short time there was strong protective power. At first the reduction both in mortality and sickness in inoculated as against the uninoculated was about one-third. Later it became evident that the immunity conferred, as was expected from a protective measure alone, lasted about three weeks; then it began to wear out and the animals began to grow sick, and the immunity conferred was not as great as it would have been.

We then made an attempt to extend that immunity by giving a second dose at a later period; but then we came up against certain difficulties which would require a great deal of explanation; and doubt was thrown on the sterility of the serum. As a matter of fact, however, the whole of the serum previously used had been most carefully tested by standard government test and also by inoculation in guinea pigs and rabbits, and nothing had been found. It was re-tested after the doubt had arisen, and still nothing was found. But, as it was, the protection afforded was of such a short duration it was decided not to continue with that work. What we did was this: Having given an initiative dose, and then another dose three, four or five weeks later, we got a reaction which I have little doubt was absolutely normal—it has nothing to do with the sterility

of the serum. We were able to produce this reaction with great certainty by allowing a time between the doses.

Up to the present the results have been very, very encouraging. Our system is this: A trainload comes in of freshly purchased animals, which our experience shows will develop sickness of anywhere from forty to fifty or more per cent. We take the temperatures of all those animals the day after they arrive, and any with a high temperature—102 or over, or even less—is given a dose of this serum, one dose subcutaneously, then on the second or third or fourth day—as a rule, not more than one dose is required, the temperature goes down, the animal feeds, and goes along very nicely—on the second, third or fourth day, or even the fifth or sixty day, if they do not appear to be doing nicely, a second dose is given. A third dose is seldom required, but during the last three months that we have been purchasing we have, in addition to the same serum used before, been treating a number of cases, three or four trainloads a day. The first trainload came into the depot June 13. Those animals came in, consisting of 530 animals—I think 534, to be exact. Of those one had to be destroyed. He had an open joint. And one died three weeks and three days later from pneumonia. It is now ten weeks from the time they came in.

In the second trainload two animals arrived in such condition they died within twenty-four hours, before they could be treated with the serum at all. All of the remainder are alive.

The same applies to another trainload which came to Montreal on the 5th of this month. Those animals came in in extremely bad condition, during the very hot weather, and we expected bad results. The first day 160 were picked out with high temperature, and in the first two days 260 had been picked out with high temperatures and given the serum treatment. At the last report all were still alive.

Another trainload came in on the 8th, and one of the animals was moribund with pneumonia and died an hour or two later, before the serum could be used. All the rest are alive.

Out of these fourteen loads, comprising 4,310 animals, the mortality, from the last reports we have, has been: one from an open joint, one from pneumonia (which was treated with serum); and three from pneumonia which were never treated with serum, and which died within twenty-four hours after arrival.

With those results I should say we are working along better than ever before. I am sure that with those trainloads under

any previous system, you might have expected a loss of two, three or four per cent. I don't say we are going to maintain that standard for any length of time, but I have no doubt the serum has acted very, very well. We have had some difficulties in connection with it, and there are considerable difficulties in connection with the hyper-immunizing that will have to be overcome. There are certain losses that will have to be taken in connection with that; but the results up to date have been most encouraging, and I think it will have a big effect in the future in keeping down the death rate from this condition.

Where the organism comes from is a problem I have been trying to solve, but up to the present I have not succeeded in doing it. Biologically, it is very similar to the Hay Bacillus, but its toxins are very powerful, and we have not yet been able to recover it definitely from any outside source, outside of the blood stream or the glands, et cetera, of infected animals. But, as I say, we have no evidence of it running through a trainload. It holds its power as a result of debilitating circumstances. You can keep your animals as long as you like under healthful conditions. In some of the camps the animals remain for weeks and weeks. The conditions in those camps I don't think are particularly sanitary, not as sanitary as in some of the others; but you take those animals and move them on a long train journey and you still get some traces of the fever, but they are not so bad if the conditions under which the animals were held have been sanitary. Why that should be it is hard to say. It may be a question of the virulence of the organism being raised, and also the fact that animals held under unsanitary conditions have reduced vitality. That we know is correct, because we have had an experience of that in an experiment which was carried out last year, in regard to using the Continental system of bedding; under that system the manure was allowed to build up under the animals, and the sickness was increased enormously—and I think the cause of the sickness was probably reduced vitality. Whatever you may expect from serum or any other form of treatment, don't let anything that I have got to say interfere with the basic importance of sanitation. We have concentrated on it, and the results bear us out. You can see it in the results from the different depots. The sickness and mortality vary according to the state of sanitation in which the depots are maintained, every time. Sanitation is the sheet anchor, after all, in dealing with this situation. Prevention is much better than cure. If

you have some means of cure that will help us out, that is good; but sanitation is the sheet anchor after all. One of the difficulties we have had to experience in dealing with this condition is the fact of animals being held in long open paddocks which it is impossible to inspect.

I don't care what you do, or how you try, where you have hundreds of animals running in a long, open paddock, it is impossible to inspect. It is only a question of time, a few days, more or less, when that paddock will become infected, and grossly unsanitary; and no system of sanitation can get over that difficulty.

On the other hand, if you have got an establishment of moderate surface which you can constantly disinfect, and maintain in sanitary condition, there is no reason why it should not be in as good condition after a year's working as at the beginning. That is one of the difficulties we have had to contend with.

I am very glad to have had the opportunity to make a few remarks on the subject, because I know it is one of the greatest importance, and I am sure that the work the Bureau has done in cleaning up stock yards and tracing the causes of disease, et cetera, in connection with the military authorities, is of the utmost importance with regard to remount work in this country, and I am glad to add my little word of thanks to the Bureau of Animal Industry for the work it has done, for it has been of great assistance to us. (Applause.)

PRESIDENT TORRANCE: Gentlemen, I am sure we are all grateful to Col. Olver for the address he has made, and the information he has given us with regard to the work at the remount station. It is of vast importance to the Army, and every bit of information we can get on it is of the greatest value.

THE VETERINARY PRACTITIONER AND THE CONTROL OF INFECTIOUS DISEASES.*

V. A. MOORE.

DISCUSSION.

MAJOR COTTON: It seems to me that this paper opens up a question on which there is a great deal of discussion from the standpoint of State control. We have numerous State organizations which depend upon local practitioners, deputies and State

*See December Journal, page 211.

veterinarians for control work in neighborhoods. This paper is an innovation We have other States, and believe that in order to get the proper State control it is necessary to have deputized State veterinarians under full-time pay and under the control of a central State organization; and I think this paper should be thoroughly discussed. This is a question on which various States differ on this proposition. I should like it to have a free discussion.

DR. WILLIAMS: As I understood Dr. Moore, there is no conflict between the views just discussed and on the other varying views held by veterinarians. As I understand, a communicable disease comes to the knowledge of the State Veterinarian through the practitioner, and through no other means. Outbreaks among animals are first seen by the private practitioner, and the function of a State or Federal Veterinarian is to organize the forces to combat the disease once it has been reported; but there is another very prominent and very important phase which Dr. Moore has brought out, and which should be emphasized. That is, that many of the contagious diseases, which incur great losses amongst live stock, are not handled by central veterinary authorities; for instance, I am giving most of my time to a great infectious disease regarding which no central authority takes any cognizance beyond investigation. The central authorities, the bureaus in the various States, attempt to investigate, and lay the facts before the leaders of health, and before veterinarians, to show how this group of losses may be prevented; but it has not yet, and I sincerely believe it will be a long time before any such central authority shall attempt any central restriction to prevent those diseases.

We will find that only a very small percentage of diseases are handled by central authorities at all. One State, for instance, has a law requiring us to promptly report any contagious diseases which we see, which includes everything from the mange in cats to glanders in horses; but I don't think that a case of mange in cats has ever been reported to the State Veterinarians, nor do the veterinarians of other States report any very large number of diseases.

The second practitioners' course at the New York State Veterinary College, New York City, which occupied the three latter days of January, was, judging from the program, replete with good things, both as to topic material, and the personnel of the lecturers and instructors.

PRESENTATION OF PORTRAITS.*

R. F. EAGLE.

Prefatory by Dr. Eagle:

Mr. President and Gentlemen: Since this convention has been here assembled you have had the opportunity of listening to many addresses, classic in some respects, and I don't feel competent to review the progress of veterinary science. I am here for another purpose. But, in order not to encroach upon an already crowded program, I am going to get to the little statement I am going to make immediately.

Just before leaving Chicago, Mr. Ogilvie informed me that Canada is contributing an oil painting to Dr. J. G. Rutherford. (Applause.)

REMARKS.

DR. W. H. HOSKINS: The presentation of these three portraits of honored members of our profession (Drs. Salmon, Melvin and Mohler) is of particular interest to the practitioners of America; and in order to carry out the intention of the committee I move that these pictures be turned over to the Executive Board with the view of seeing that they are placed in the Saddle and Sirloin Club of Chicago, with an expression of our appreciation for this recognition they have given these distinguished members that we have mingled with so many years.

DR. MAYO: In seconding that motion I would also like to include that we extend to Mr. Thomas E. Wilson our sincere thanks for his generous contribution to this valuable object, and also to the Saddle and Sirloin Club for the opportunity not only to establish this gallery, but for the opportunity they have extended to us to place these distinguished faces of our veterinarians there.

DR. BENNETT: I would like to suggest that the portraits be presented to the Saddle and Sirloin Club of Chicago during the Stock Show around the first of December. Many of the veterinarians here will be there. A great many of the prominent leaders in veterinary medicine of this country will be there, and also of Canada; and I would suggest that the presentation be made to the Saddle and Sirloin Club at that time.

PRESIDENT TORRANCE: Would Dr. Hoskins be willing to have that included in the original motion?

*See January Journal, page 362, for full statement

(Dr. Hoskins accepts the amendment.)

PRESIDENT TORRANCE: It has been moved and seconded that these pictures be turned over to the Executive Board with the view of seeing that they are placed in the Saddle and Sirloin Club of Chicago, with an expression of our appreciation of this recognition they have given these distinguished members we have mingled with so many years, and that we extend to Mr. Thomas E. Wilson our sincere thanks for his generous contribution to this valuable object, and that our thanks also be extended to those other gentlemen who have contributed in no small measure to the carrying out of this estimable project.

(On vote the motion was passed unanimously.)

THE LIVE STOCK INDUSTRY, PRESENT AND PROSPECTIVE.*

J. J. FERGUSON.

In introducing his subject, Mr. Ferguson spoke as follows:

This is not a very good time to talk. A man said to me this morning: "Why aren't you fighting? Every man who looks as able-bodied as you should be over there giving the Huns hell." So I don't think it a good time to inflict much of a talk on you.

In order to save valuable time I thought it well to put in the form of a small folder the information and data which I thought it might be well to be put before you.

Gentlemen of this Association, your work is so vitally connected with the success in every way of the live stock industry that we regard you as fundamental, and it was with great pleasure indeed that our people were advised that I was invited to come here and appear before you. I will just run over a few of the facts I have jotted down, and which I have had printed here so you may have them before you and may read them at your leisure.

With reference to the section of Mr. Ferguson's paper entitled "Prospects for Live Stock Industry," Mr. Ferguson interpolated as follows:

Now we come to the crux of the situation. What does the future hold for live stock men and veterinarians? On this mat-

*See October Journal, page 8, for complete paper.

ter no man has any definite knowledge. I might say that even the United States Federal Trade Commission, which has more resources at its command than any other organization, has no definite information on that point. In spite of the submarine menace there was never a time in the history of the country when there was such an opportunity in live stock production as there is today. The story that we are short on our visible supply and actual supply, not only at docks, but here at receiving points and terminals on the other side, is so far from the truth that, on the contrary, the supply is away ahead of schedule all along the line. Don't forget that point. (Applause.)

Under the subject "New conditions offer greater opportunity for constructive service in the veterinary profession," Mr. Ferguson spoke as follows:

So much for the situation. What interest has this to you as members of the American Veterinary Medical Association? And I want to read a mild indictment to you men, with many of whom I have been associated for a great many years. Many of you have done good work, and you get together and say, "We are the salt of the earth, and do great things for the country," but old things have passed away. What applied five years ago does not apply today; and when the war is over, as one of the preachers of Chicago said the other day, "We are going to have a new Heaven and a new earth," and you can look forward and see whether you members of the veterinary profession are doing your part. Anything and everything is within the individual activity of every one of us. You and I are doing things today to help that we never thought we would be called upon two years ago to do; and so it is to be two years from now. So, here are a few points in this mild indictment I am going to read to you. There never was a time in the history of the country when wool was so needed and essential for the conduct of a war. Although Mr. McAdoo is Director General of the railroads, many of the old officials are still left, and they have coöperated with live stock dealers, in years past, in the disinfection of primary stock yards, terminal stock yards and rolling stock of transportation companies, and all that the transportation companies use to help in moving stock from one to another part of the country.

The thought I have behind this suggestion is not a hit-and-run thought, not a sporadic institution, but that the American Veterinary Medical Association in general should have a sort of publicity bureau contributed to by the minds of the best men in

the profession, who will prepare press letters and bulletins which could be syndicated, and which could be sent to the man on the land, who can not be reached by a journal of this kind. Don't you think the Live Stock Association of America would be glad to have a man like John R. Mohler present an address on the work of the Bureau such as he presented here a few hours ago?

The only trouble with all our organizations is that they concentrate, they do not get out and reach the men whose work is basic, farmers, breeders and shippers.

If you knew as I know—I happen to be a breeder of pure-bred stock myself—what thousands and thousands of dollars' worth of pure-bred stock is lost every year by reason of having them go the circuit of state fairs, you would know the value of this little point right here. See that your state fair associations have their places cleaned up. (Applause.)

DISCUSSION.

DR. LOWE: I feel that this Association is very greatly indebted to Mr. Ferguson for his paper, and for the broad and competent presentation of the subject discussed. It must be apparent to all that the interests of the live stock dealers and the practicing veterinarians are inseparable, and the more we become imbued with that thought the better it will be for all interests concerned in this country and throughout the world. I have, Mr. President, for many long years thought deeply upon the preëminent importance of the veterinarian being in closer touch with agricultural and live stock interests of the state and the nation; and I think we must all feel very much pleased that Mr. Ferguson has presented the matter in such an admirable and interesting way to us. I feel that we should not let this matter drop here, but that we should take steps as individual veterinarians, as members of our respective state organizations, as members of this great international veterinary association, to carry into effect the very things that Mr. Ferguson has suggested to us. They would be helpful to the live stock interests and they would be helpful to the veterinary profession. I trust this subject will be fully discussed.

DR. MURPHEY: One thing brought out in this discussion I think we should take home with us and keep in mind, and that is the fact that permanent agriculture must be based on successful live stock industry.

HOG CHOLERA CONTROL IN THE EAST.*

E. A. CAHILL.

DISCUSSION.

DR. BIRCH: This is a subject, I think, in which we are all interested. I know I am especially interested in it, and I could not let the opportunity go by to compliment Dr. Cahill on his paper, and on his manner of approach to the subject. All of us know that it is the young pigs that are giving us the trouble. We can give simultaneous treatment to the old animals and be certain of lasting immunity, or reasonably certain, at least.

There are one or two points in regard to Dr. Cahill's paper, and especially the point in regard to the differences observed at different places, which I would like to comment on. Like him, I am at a loss to explain those differences, but I do know that in many of the herds in which I have worked the immunity conferred by immune mothers will not last more than a couple of weeks. In several of these herds we have had to give serum treatment to save their lives. So, they will stand up under serum treatment alone and virus treatment alone six weeks, but here again we get fooled sometimes, and we are really, in this one respect, treating from clinical experience, and not from experimental work. We don't know as yet the relation between the immunity conferred—that is, the passive immunity conferred by serum alone, and the active immunity conferred later on. At present I have experiments going on on that particular point; and that is why I am so interested in Dr. Cahill's paper, and he has certainly given us a paper which it is well to take home with us. (Applause.)

A MEMBER: Dr. Cahill has mentioned the fact that he waits until the young pigs are six weeks old before he gives them serum. We have in California a number of cases such as were mentioned by the last speaker, in which our young pigs become affected with cholera before they are six weeks old. In that case if we give them serum alone we save their lives, I would like to know how long after you would give the simultaneous treatment.

DR. CAHILL: Speaking for the East, I can tell you that the passive immunity conferred by serum alone treatment will invariably last six weeks. There are exceptions, but I saw only

*See January Journal, page 314.

two exceptions to that rule in the east. The passive immunity conferred on the young pigs, or any pigs, in those exceptions, lasted three weeks; but in all other cases it lasted six weeks.

There must be some problem in immunity that is not clear, and I am not attempting to explain it, but simply trying to present it so clearly that it may be done.

In the middle western states they told me the pigs would not remain immune only a few weeks, and it did not seem possible—only after seeing it for myself did I believe it.

DR. JOHN REICHEL: Dr. Cahill's experiences with the baby pigs is very interesting and I think very valuable. To me it seems something very definite is at work. When we study these figures of Dr. Cahill's about the number of susceptible animals after a certain period there does not seem to be much difference between the number after eight weeks and the hogs weighing two hundred pounds. Of the total number, as I take it from Dr. Cahill's report, something like eight hundred pigs were included in these experiments, weighing from fifteen to thirty pounds each, with very little differences in the ages of those pigs. Just the factors that caused failure or success are the things we are interested in, and I wondered if Dr. Cahill gave any thought as to the fundamental reasons for the differences. I have in my experience noted that pigs born from immune stock, or non-susceptible stock, do possess some "mother's immunity" for some time—how long it lasts I don't know, but it does last for some time and it does not matter so much whether you give the pigs serum or virus; it does not seem to do much for the pig.

It seems, however, in the application of the simultaneous treatment through the baby pig, it won't do much unless the pig happens to be susceptible at the time you administer the simultaneous treatment. We don't know when the pig is susceptible, or whether it may transfer this passive immunity or mother immunity; and I would ask whether we administer virus to pigs of a known age—not fifteen to thirty pounds—but of a known age? It seems to me we get this breaking down where the mother immunity ceases and the pig becomes susceptible. It seems to me the pig must be susceptible to act in order for the treatment to get anywhere. I should like to know if Dr. Cahill has had any experience in treating with virus alone when in that susceptible period.

DR. H. P. HOSKINS: In asking Dr. Cahill to go on the program for this meeting I knew he had a wonderful amount of

cases in his experience in Massachusetts in the control of cholera in these down-east garbage-fed herds. It is extremely interesting to me, for while I was in Colorado I had experience in a similar matter; but when we got together in Chicago we could not agree, and as others have done we came to the conclusion that there are at least two different kinds of cholera in the United States. And we have been in the habit of speaking of them as "eastern cholera" and "western cholera." That is why I wished Dr. Cahill to go on the program at this time and present hog cholera under eastern conditions; because, as he brought out, the cholera you have in the eastern states is absolutely different from cholera in the corn belt.

The question I wish to put to Dr. Cahill can be answered at the same time he answers Dr. Reichel, and that question is this: Whether these pigs were still nursing or not—because I am firmly of the opinion that these pigs while they are still suckling undoubtedly get considerable portection through the milk from the mother, and that is a factor which should be taken into consideration.

In discussing these remarkable results—I say they are remarkable for this reason: I believe it would be absolutely impossible to duplicate them or come anywhere near duplicating them in a herd of hogs in Minnesota.

DR. KINSLEY: I would also like to ask Dr. Cahill a question concerning the immunization of the pigs. As I understood, he said that now the method resorted to consisted of giving serum only to pigs at about weaning time, and about thirty days later following with the simultaneous treatment. Is that correct?

DR. CAHILL: Six weeks later.

DR. KINSLEY: I would like to know if those six weeks later pigs, which have been given the simultaneous treatment, have really been exposed to cholera, and, if so, why they did not succumb in the same ratio as we see on the chart. That method as I have seen it applied certainly has not protected pigs in the middle west.

DR. PIERCE: When Dr. Cahill is answering these questions there is one other he should answer at the same time. He mentioned that he gives the pigs the single treatment at six weeks of age, and six weeks later the double treatment. Are there any pigs at the second treatment that do not receive the double treatment? If so, in what condition were the pigs?

DR. REICHEL: May we ask Dr. Cahill to answer these questions before so many pile up?

DR. CAHILL: Thank you, Dr. Reichel. I am going to start at the rear end and go forward. The first question is that of Dr. Pierce. I rather thought he was a little more familiar with our work than to ask that question. It was covered in the report of the Commissioner pretty thoroughly last year. In these cases, almost invariably—I am speaking now of garbage-fed herds only—almost invariably if the simultaneous treatment is not given six weeks after the serum-only treatment, almost without exception we have an outbreak of hog cholera in those pigs. The owners of the garbage-fed herds, in the New England states at least, are so aware of that fact that after the five weeks' period they start calling the Commissioner's office, and make engagements to have his men, if possible, at their places on certain days, which will be six weeks from the time the serum-only treatment was given. Of course, if they were able to follow that closely they followed it six weeks to the day; but I don't mean to say that if that were not done the outbreak would occur on the day after the six weeks were up. I do mean, however, that almost invariably if the six weeks or seven weeks were allowed to elapse between the serum-only and the simultaneous treatments the outbreak was pretty sure to occur. That we found repeatedly from experimental work. I could have put it in the paper, but I thought it was too lengthy and too statistical. We did find the length of time that the passive immunity from serum-only treatment lasted. I am not attempting to speak of conditions in Dr. Kinsley's section, but only in the New England states. In New England, where a large percentage of the animals are garbage-fed, it will invariably be found that the period of immunity, passive and active, conferred by serum-only treatment averages six weeks. Occasionally it does happen—and I suppose this must apply to all forms of passive immunity—that certain animals contract the disease; and it is only to be expected that out of one hundred animals you will not get one hundred per cent that do lose their passive immunity in six weeks. I have always found some animals who will retain their immunity for six and a half or seven weeks.

Dr. Reichel's question regarding virus given at a definite age—in order to answer that I will have to draw a line of demarcation between the two kinds of feeding. You know garbage feeding is new in many sections of the country. In New Eng-

land, and in Massachusetts, it is about as old as the live stock industry. There are many herds they have been feeding garbage for thirty years—never saw anything but garbage from the time they are weaned from their mother to the time they go to market. Many never leave the pen until they go to market. These garbage-fed herds I speak of as having been in existence so many years have gone through a peculiar experience. I don't believe it can be paralleled in any other section of the country. Before Massachusetts began its campaign against hog cholera the statement was often made that in order to raise five hundred hogs twelve hundred would have to be farrowed. The owner would be satisfied with that proportion. As time progressed the history of the work showed that invariably these pigs in garbage-fed herds were practically safe while nursing and up to forty pounds, but in approximately twelve weeks there was an outbreak of hog cholera in those herds. There are many in the room who have had experience with garbage-fed herds, and I believe they will tell you that is their experience—that where garbage has been fed for many years they can allow the serum-only treatment to go and let the herds go, even though they had no trouble with them as a growing herd until they reached forty pounds, and then have to do something. In other words, that does not apply.

Although I spoke in my paper of animals taken from herds where the immunization treatment was being commenced—and the immunization had not been carried out among many registered herds—the majority of them, however, were conducted with small corn-fed herds—and the amount of immunity conferred by the mother, passive immunity, was a negligible quantity. We do not figure it was necessary to carry that into effect. At the same time, it was noted that when virus was given as a control we invariably had hog cholera in from seven to fourteen days.

I did not get the note on Dr. Hoskins' question.

DR. H. P. HOSKINS: The question was whether you took into consideration—whether all these pigs were in the same class, whether suckling or not. That is, were they still nursing?

DR. CAHILL: I might say that the variation there appears worse than it is. It is pretty hard to go into certain herds and take eight hundred animals and find them all to weigh from fifteen pounds to twenty-five pounds—we have certain animals in there that would weigh fifteen pounds, although five weeks old.

They should weigh twenty-two or twenty-three pounds in that section. So that, all those animals were in the neighborhood of five to six weeks old; although their actual weight did vary, their weight was practically the same, not ten pounds' difference in the weight.

DR. HART: We have been feeding corn in California, and the statement that Dr. Cahill makes with regard to the loss in these hogs raised for generations on garbage feeding will hold. When the simultaneous treatment will hold they live. With the opening of the war many hogs were brought in on garbage feeding that had never had garbage before. Now the first litters will not hold until forty pounds in weight, but will easily break—and many cases at three weeks of age, too young to give the serum-only treatment—and we had to do something with those pigs to save their lives. We don't know exactly what to do with those pigs, whether to wait to give them serum-only treatment or give them serum and virus, with the idea that the permanent virus infection they get in the garbage will prevent them from breaking. We have tried both schemes and have not had success with either of them. Those hogs that have not had garbage for several generations, and on which they do break, have animals die at one hundred and fifty to two hundred pounds, and yet there will be no other losses in that herd. It looks serious for the time being, but if no treatment is given a very small percentage die; but that percentage is too much loss at the present time.

DR. CAHILL: That coincides exactly with the east. These owners who have been feeding garbage would not sell a pig, or it would take a great deal of persuasion to buy pigs, from garbage-fed herds; they keep all the pigs, especially those the least bit applicable for the foundation of herds.

Every dealer from the east who went west and bought a good sow or boar told about the break fourteen or fifteen days after they got there.

As the swine owners commenced to see that hog cholera really could be controlled they naturally went out and bought more animals, because the garbage was available, and if they could only prevent cholera their troubles were over.

Now, the animals that had been there generation after generation practically never break inside of forty pounds; but as soon as you bring in a new sow or boar and put it into that herd the pigs from that herd will be sure to give you trouble. They would

break, as Dr. Hart says, from three to four weeks, and sometimes less. The only way to govern that was to insist on State control. It is easier to do that under State control than under private authorization.

We were able to formulate certain principles from our experience. They are as follows: First, pigs must never receive a simultaneous treatment under forty pounds—and we try to get a combination of forty pounds and twelve weeks of age. Second, simultaneous treatment must never be administered within six weeks of serum-only treatment.

Those two facts were only arrived at after considerable field observation and experimental work. Sows which had been brought into the herds were given serum-only treatment within three or four weeks of farrowing, and the young pigs would sometimes carry immunity until one or two weeks of age. If a break occurred the sows would be given serum-only treatment within twelve weeks of farrowing; but never simultaneous treatment given six weeks after serum-only treatment without expecting a break.

DR. MCLEAN: This is an interesting subject to me because I am engaged in the hog-raising business, and I feed garbage. I think the difference in practice of protecting against hog cholera as between the garbage-fed hogs and the corn-fed hogs is due to the power of resistance in the corn-fed hog. A corn-fed pig at the age of one hundred days should weigh one hundred pounds, some of them one hundred and twenty-five. It is very rarely that you can get a garbage-fed hog to weigh one hundred pounds in one hundred days. The difference in the quality of the food makes a great difference in the growth of the pig; consequently, it makes a great difference in the natural power of resistance in the hog. This is well demonstrated in the appearance of the carcass of the corn-fed and the garbage-fed hog. The fat of the corn-fed hog is solid, more firm, and less friable. In the garbage-fed hog the fat is flabby and soft. It is hard to get the lard from a garbage-fed hog hard.

All garbage-fed hogs are exposed to cholera from the time they are fed garbage. Some years ago, when the lamented Dr. Melvin was in charge at Washington, I asked him, at Chicago, if it were not possible that the wide spreading of hog cholera was due to the trimmings of pork that were shipped from the packing houses in the west. He said: "It is impossible." I said: "Doctor, I believe that the scattering of hog cholera is

due to the feeding of pork from the western packing houses which escaped the inspectors—and we admit it is an utter impossibility for the inspector to detect early infection.'' Some years later Dr. Melvin said: ''I owe you an apology. We are satisfied that hog cholera is scattered from the trimmings of packing house pork.'' That was visibly shown me in my treatment of hog cholera some years ago where it broke out in the herd of a man who fed his hogs with hotel garbage, and he was using western pork. I could not trace the outbreak to any other cause.

I have found that the continued method of garbage feeding makes the hogs naturally immune, on account of his becoming accustomed to eating this more or less infected food. There was a time, you remember, when we used to vaccinate the hogs and then turned him right in among infected hogs. At that time it was advised to feed him on the flesh of hogs which had died of hog cholera—before the simultaneous method was used.

DR. H. S. MURPHEY: In our experience last year we found there were two kinds of cholera. I think the men who have a large amount of experience in dealing with hog cholera in Iowa found there were about fifty-seven. We found there were certain factors which had to be taken into consideration in the handling of the animals. Last year there were a good many animals shipped into the state, and they had to be given the serum-only treatment, and six weeks after arrival they were given the simultaneous treatment, and the losses were very heavy. It just raises the problem that there is no solution to it yet. I think there are good suggestions, especially Dr. Cahill's, that it must be six weeks between the two treatments. But the secondary infection must play some part as yet unknown in the duration of immunity by the serum-only or the simultaneous method.

DR. BIRCH: I would like to ask Mr. Murphey, in those cases where the animals were lost—that is, with the serum treatment given at the time of shipping and the simultaneous treatment given, I think you said, four weeks after shipping—did those animals die as the result of the simultaneous treatment then or did they fail to stand up later?

DR. MURPHEY: Some of them died at that time, but usually they contracted the disease in about four weeks, usually broke in about four weeks after this treatment was given. There were all kinds of theories. One was that the immunity, passive immunity, destroyed the virus, the second infection, and that when

the immunity then passed from the second infection, they were again susceptible, in four weeks. But in some cases the serum and virus proved to be potent by test, and it was proven that the pig died of cholera by invaders of secondary infection.

DR. BIRCH: I do not just get Dr. Murphey's point. I don't see how, if the virus were destroyed, it would kill the pig on the second injection; and I understood him to say that if the serum only were given first and the simultaneous later, it died following the simultaneous.

DR. MURPHEY: Some died that way, but most as the result of the break—but after four weeks.

DR. FITCH: Dr. Murphey in his remarks mentioned the point which is of great importance. Throughout the state from which I come, the State of Minnesota, there is more or less cholera. However, it seems to be more or less localized in certain counties. We have heard a good deal during the past year about the new disease among the swine called necrobacillosis. We all know that necrobacillosis is an old disease, or one of the oldest. Yet this particular disease seems to be becoming more and more common among the herds of Minnesota, and as a secondary infection or as an infection coming along with hog cholera. I don't believe there is any more important phase of the situation to consider in that locality. In an investigation which I made a few weeks ago in Martin County, along the southern border of Minnesota, investigating seven herds, I found in two of them hog cholera and in five necrobacillosis. In one of these two there was a mixed infection, and it was in these cases of mixed infection, where serum is used and the results from it are very poor, that is where much of our trouble arises. To be sure, necrobacillosis is more common among the smaller pigs, but it is far from being unknown among the larger ones; and also it is among the smaller pigs where we have the most of our trouble. And as a secondary infection I think it should be carefully considered in connection with the treatment of hog cholera.

DR. G. W. DUNPHY: I would like to ask Dr. Cahill a question. Every year it seems something new comes up in regard to hog cholera. We get in the frame of mind where we think we can sit down and feel that we have mastered the situation, and that we have found out a system by which hog cholera may be rendered harmless to a certain extent. We get in a frame of mind where we feel we have the right system of immunity, and

every year some one comes up and apparently throws a monkey wrench into the machine and starts things going wrong again.

I did not hear Dr. Cahill distinctly, but I would like to know about the duration of immunity, about the length of time of the period of immunity that he gets by using the serum-alone treatment and then following it six weeks later with the simultaneous.

DR. CAHILL: I wish Dr. Dunphy would give me the prescription for that frame of mind. I have never been able to get it yet. It seems to me there is a monkey wrench in the gear all the time. Our experience in the east—again I am speaking only of eastern conditions—has been that if the method is followed as described in my paper, of giving pigs when six weeks old serum-only treatment, and not administering the simultaneous *within* six weeks, and then being sure you have a virus that is really a virus, and you use enough of it—not less than 2 cc under any circumstances—your immunity will last for life, the life of the average pig. There are registered brood sows that have been immunized four to five years, have traveled over the country, have gone under garbage feeding when grain was not available, and which have remained immune. And we have tested others with tests of virus and our immunity has remained.

I am simply relating the experiences as obtained under the present methods in Massachusetts, and where immunity does not fail to act. It may be a mistake to call it permanent immunity; it may be more correct to call it "lasting immunity."

Now, Dr. Fitch spoke of conditions in Minnesota. I am glad he spoke of that, because I don't believe there was ever a time when Minnesota's situation with regard to hog cholera was as critical as at the present day. I am not speaking of a control method, but of a diagnostic method. We could start a discussion that would not end today, about control methods and diagnostic methods.

There are as many losses today from hemorrhagic septicemia in swine as from hog cholera, and maybe more. It is urged as a point where the veterinarian in the field must watch every move he makes. You all know the lesions as displayed in that disease at times are so closely allied to hog cholera as to defy any man. It seems that before a man can be sure of his diagnosis he must prove it by laboratory methods.

Many in the middle west today are in terror as to the conditions that exist. The veterinarian will go in a herd and post one or two and find lesions in the lungs and call it hog cholera. There

are a lot of later cases of hemorrhagic septicemia in those herds that do not become apparent until something lowers the vitality of those herds, yet if you inject virus you get the same conditions as if you shipped your pigs to market, and it is immediately followed by an outbreak. That is not only puzzling to the man who has to do with the disease, but terrifying to owners.

DR. DEVINE: Some three years ago at a state veterinary meeting in New York I said I could not diagnose hog cholera in the field clinically with any accuracy at all, or any satisfaction to myself, and I questioned whether there was any man in the state who could; and some of my colleagues did not like that statement. I see as we go on Dr. Cahill is leaning a little more that way. I think it is a good thing, perhaps, that we learn more rapidly under that frame of mind. I would like to ask, however, what is the duration of the immunity conferred on the old pig? If we wish to ship a pig to the fair, what is the length of time of immunity in that pig as compared with the baby pig?

DR. CAHILL: My experience in that is very limited. There are practically no herds in Massachusetts where that condition is called for. Occasionally it does happen that a man has new animals just come into his herd that he wants to ship, and that must receive the simultaneous treatment.

I do want to say that as long as the doctor has said something as to my leanings, I am sorry he has not read some of my writings. If you will go to the records of the Bureau of Animal Industry you will find writings along that line for three or four years. It was possible in Massachusetts for us to study the conditions of hemorrhagic septicemia even previous to this time.

PRESIDENT TORRANCE: We have had a most interesting discussion on that subject.

DR. KINSLEY: I do not yet understand you. In this first column 200 pigs, immunized, were protected in six weeks and given a simultaneous treatment, and then in six weeks were given another immunity. How could they be given an immunity when they already had an immunity?

As I understand your problem of the suckling pig, you immunize the suckling pig by serum alone; but we are led to believe forty-eight per cent of them still had immunity up to the expiration of six weeks, and then you give the simultaneous treatment; and I don't see, with our present knowledge of immunization, how you could give a permanent immunity.

DR. CAHILL: By giving the simultaneous treatment in our baby pigs, at six weeks. Then there are a certain number of animals which do retain that immunity, and the simultaneous treatment should not be given to all baby pigs weighing from fifty to sixty pounds.

DR. KINSLEY: But some will still be immune?

DR. CAHILL: Yes.

DR. KINSLEY: How can you intensify that by giving simultaneous treatment?

DR. CAHILL: You could not be sure to do that, but some will retain immunity at the end of six weeks, but if you then give the serum-only treatment, forty-eight per cent are still carrying immunity, and for that reason this experiment was conducted—to show that treatment should not be given again in that way.

I made the remark a short time ago that there is a very small percentage which will break before they are ready for market, but a very small percentage will.

DR. CONNAWAY: I don't think we ought to leave this question without calling attention to some of the essentials of disease control. This leaves us in a large part of the country with possibly a false impression as to the best method of handling this disease, and ultimately getting rid of it. We have these same conditions which Dr. Cahill speaks of, in every western state; that is, in a small way. We all have our small areas of pens of garbage-fed swine around towns. He tells us that Massachusetts is one great big garbage pen. (Laughter.) These are not the conditions in the west. We have towns, we have districts where hog cholera has not been known for twenty-five or thirty years. And we don't want the impression to go out, from a paper like this, which will influence people on farms like that to use methods which will increase the cases of cholera. Hence the importance of emphasizing the importance of disease control—the methods of which are quarantine and disinfection. We must get at the source when an outbreak occurs, get at the source and try to stop it right there, as the Government people are trying in many states today. Try to keep it from spreading. Try, if possible, to avoid the use even of serum alone. Try, if possible, in that community to avoid the use of serum and virus. Now, there are places where we need to use both; and where they are applicable and necessary it should be done, but it should be done under proper control and by men who know how to do it and who will

take every possible precaution to see that the disease does not spread from those premises to other parts.

Now, I think that I can see one cause for the remarkable results which Dr. Cahill presents. I think there is not in this garbage-fed section any lessening, possibly, in the total death rate than what it is in other portions where inoculation, or where other methods are used. I think that a large—or some part at least of what he has called complications, and which have not lessened the death rate, are due to cholera. That is, in these hogs that have been vaccinated, they may have lost their immunity and may have actually died of cholera. Now, among our practicing veterinarians who have been vaccinating hogs, where they have immunized a herd some of them think that it reflects upon them and the serum they have used if that turns out to be cholera. Hence the tendency to find some other cause for the death. I don't say they do this deliberately, but because of the inability to make a diagnosis—and as the doctor from Iowa says, it seems as though we have fifty-seven different kinds—and it is easy enough to find some other trouble, or supposed trouble, when our hogs die after vaccination. Some of these do die of real hog cholera after vaccinatin by either one of these methods. I believe the Government men who are in this kind of work will sustain me in this statement: Serum is not one of those things that is perfect yet. The method of application is not always perfect. There are conditions under which this may be applied which will not give us results. The condition of the animal—an animal in these shipments, for instance, the shipments that have gone into Iowa, I believe many of those, Dr. Murphey, have actually died of cholera. The immunity is a relative affair, not absolute.

Texas fever of cattle—you know those raised in the southern country—do not have an absolute immunity. They remain resistant to that disease as long as they are not disturbed, but you put those animals on a long drive and then ship them, and maybe dip them at the other end, and many of those animals will show typical Texas fever.

So, we should not expect to get perfect results from our vaccination by either method. I want to mention some of these things so as to keep before us always these essentials to control. The destruction of the hog cholera virus is the problem of the sanitarians. Let us look forward to the day when we don't have hog cholera in this country. It won't be long before Texas fever

will be a thing of the past. I can immunize cattle against Texas fever. I have done it. I have immunized bulls against Texas fever, and they have lived. Dr. Dalrymple here has immunized cattle against Texas fever. But we saw we had not the ultimate solution of this thing. The ultimate solution was the doing away with the carriers of that disease; so, we must hold fast to the essentials to disease control.

DR. MURPHEY: There is one point that ought not to go by. Most of the reports that have been made here have pertained to the laboratory end of the work in hog cholera, and I had the pleasure of reading the paper of one of my colleagues a day or two ago on "Differential Diagnosis of the Diseases of the Pig," and it was pointed out that the practitioner must be a big factor in the control of these diseases; and while men are scared as to their conditions in Iowa, they are setting themselves to the work and studying postmortems. That must be the solution—the combination of clinical symptoms in the herd and in individuals, plus the postmortem findings; and I think that will help to solve many of these problems. That has been useful in solving most of the diseases that we have solved. The practitioners should report them, and often they give valuable leads to laboratories as to the symptomatology; and we ought not to lose sight of that in applying tests in hog cholera.

DR. AMLING: It has been my experience as to diagnostic media, from the State of Iowa we had two or three years ago several vials of feces sent on for examination, and a colleague of mine, whom I considered very clever, examined those and reported hog cholera. We also took specimens of the blood sent in to us on slides, and our reports were verified. There were no outbreaks there at that time. This was three or four months prior to the outbreak. These feces were taken immediately from the animal at the time of evacuation. I had a man on the ground at that particular time, and hog cholera, to my mind, was shown.

During hog cholera the organism is always present in the blood or the feces; and I am here to thank Dr. Cahill today, and I owe him an apology with reference to a slide shown in Kansas City last year. You remember, there was a little shoat there. I requested a slide be prepared and a report on that condition, and it was identical, the same as on others. Through the blood hog cholera will be shown, first, last and always.

I take into consideration the topography, the atmospheric condition, the altitude and so forth as having a great importance on the vitality of an animal in various parts of the country; and I am many times governed by those conditions.

TUBERCULOSIS ERADICATION.*

JNO. A. KIERNAN.

DISCUSSION.

DR. V. A. MOORE: It seems to me that we ought not allow such a valuable paper as this to go by without some discussion, although the hour is getting late. There is just one point among the very many worthy of commendation in this that I want to emphasize for just a moment, and that is this: The work that the private practitioner can do in helping this cause. I pointed out in a paper before the State Agricultural Colleges and Experiment Stations in 1910 the importance of sound herds as a unit to deal with in the interstate control of tuberculosis. It is only the herd—not the test of the individual animal from the infected herd—but the animals from the herd that is sound. I think that feeling has not only slowly spread among veterinarians, but largely among breeders of pure-bred stock. Now, this accredited herd question that has come is simply a continuation of that principle under official supervision.

Now, the way, it seems to me, in which the veterinarian can help most is to encourage his clientele to establish sound herds. The question of officially recognized herds has been discussed in our state for a number of years, and a plan that has been proposed—that is, talked over; it has never come out officially—is that a man who had a herd of pure-bred cattle, or any other herd, and wanted it approved or guaranteed, so to speak, officially, must proceed to get the disease out of his herd through the aid of his local veterinarian, and he can then go to the official with his statement that "Here is my herd. I want it under this system accredited. I have had it tested by the local man and have located the tuberculous animals, and now have had one, two (or three, as the case may be) tests (or years), and have had no tuberculous animals." And he turns this herd over

*See November Journal, page 107.

to the officials for this accredited system after he has done all he can alone. Now, if that can be done the veterinarian in practice can get these herds of his clientele cleaned up.

As I pointed out yesterday, the work that Dr. Bang has done —the owners have been instructed and educated to get rid of their infected cattle, and then the owners have been taught it is possible to keep the disease out, which many of them at present do not believe.

When that time has come, these herds can be turned over with the minimum amount of cost, and will be a tremendous help to this great movement, which I believe is one of the greatest things that has been introduced in the eradication of tuberculosis—to get these clean herds; that is, accredited herds; and I sincerely hope that the veterinarians of these states and the local practitioners will do all they can to see to it that the owners of tuberculous animals will be so instructed as to come up with clean animals and have clean herds.

I certainly hope every one will take an interest in this very important movement. I thank you. (Applause.)

DR. HART: I am interested in tuberculosis. This is practically the method used in California, and I am glad to hear from Dr. Kiernan's paper that the Bureau of Animal Industry recognizes that different methods will have to be taken, depending upon the percentage of tuberculosis that exists. It will be comparatively easy to have stringent regulations in territories where little exists. In California we have a great amount of tuberculosis, and the antagonism increases according to the percentage in which it exists. Where we get into a community where there is a large amount of tuberculosis the owners of live stock will spend a lot of time, energy and effort to defeat any campaign that is started.

We need a great amount of educational work, and that will not consist of gathering together a number of farmers and talking to them. Where tuberculosis exists in such a high percentage that we have to kill off a man's whole herd and make him get out of business, we will not have much success in getting a campaign started. We need to establish one hundred per cent tuberculin-tested herds, and thereby take the odium off it. It is necessary to have one hundred per cent herds established. We have done that on a large scale with several herds of cattle in California, and from these herds have raised hundreds of healthy animals during the six years this has been carried on. If there

had been any regulatory measures held over that owner he would have fought to the last ditch. But he had the original agreement to fall back on, that he could withdraw at any time, and he knew that; he also knew that he had five or six hundred tuberculous cattle in his herds. Now, one man has two herds consisting of one thousand head of healthy cattle, and had reduced two tuberculous herds to one tuberculous herd. That was accomplished because we had the agreement with him that physical cases would be removed as rapidly as they developed. That has been very successful with one man in California. He was the largest live stock owner in the county. But we have other counties where we need similar educational methods to be used. It is hard for a man to go out and buy cattle there and be sure he has a healthy herd.

Therefore, where we have a few healthy herds the important thing is to be able to know where our tuberculous animals are and where our reasonably healthy animals are, and take such care of the offspring that we are reasonably certain to know we will have a small percentage in that offspring, and it will work up in the course of years to be an accredited herd. And I feel that where tuberculosis is most prevalent and the greatest need for work at present exists, that some educational work carried on as outlined above will result in cleaning up the herds in these areas. And if California is going to enter into this campaign, that is the only reasonable plan, as has been done in Los Angeles County, showing the possibility of having a man change his tuberculous herds to healthy herds without being bankrupted in the process. (Applause.)

DR. AMLING: If you show a man you are going to protect his herd, I don't know any man who will fall quicker for it than the live stock and dairy man. It is impressed on us today to educate our clients and stand with them on the same ground as a protector and not as a disturber of their interests. The people at large demand protection from us in sanitary measures in reference to this very same condition; and as the gentleman from California spoke here, I think that is the only logical method to pursue along those particular lines.

DR. W. C. SIEGMUND: John Henry Miller, of Peru, Indiana, whose son, Walter H. Miller, was at one time the Secretary of the Short Horn Breeders' Association, fifteen years ago entertained the hope that pure-bred short horn cattle would be sold with their pedigree and with the record that they were derived

from tuberculous-free herds. It was fifteen years ago he made that statement.

STANDARDIZATION OF BLACKLEG VACCINE.*

Drs. L. W. Goss and J. P. Scott.

DISCUSSION.

Dr. Eichhorn: I think Dr. Goss ought to be complimented on the extensive work he has carried on in the standardization of the products which are being used to a considerable extent for the immunization of animals against blackleg. The difficulty of standardizing blackleg vaccine, whether filtrated virus or aggressins, is very great, and I only regret that Dr. Goss has not offered an absolute method by which any of his products can be standardized; but no doubt he has offered a possible solution by which it might be possible to determine the value of the product, those blackleg products.

I also enjoyed and appreciated his statements with regard to the immunizing value of filtrates and aggressins, and further that guinea pigs are not a satisfactory index to determine the immunizing value of these products. It will no doubt require a considerable amount of work before we can establish what the immunizing properties are of both the filtrates and the aggressins. The work which has been done with regard to gas gangrene I think is of great value in opening up the experimental value of blackleg filtrates and also aggressins. We know it is possible to produce strong toxins of the gas gangrene organisms, which have immunizing properties when injected into animals; and it has been carried out to such an extent that at the present time those engaged in the production of biological products are preparing tables of results with animals injected with the virus.

Substances which are neutralized by the serum—I would like to know whether this neutralization when carried out on immune serum has been any lower than when carried out with serum of the normal horse.

Dr. Reichel: I should like very much to discuss Dr. Goss' paper. I think, also, Dr. Eichhorn brought out that we are getting a little closer to standardization of these products, but I feel that Dr. Goss up to the present is on record only with a

*See December Journal, page 234.

test that might be considered a protective test of immune serum—that is, anti-blackleg serum. It is the testing of the serum against the living organism—I don't think that that will eventually be the standard test for the testing of anti-blackleg serum, because it is very difficult to regulate the effective dose, very difficult. Even in Dr. Goss' work he uses two forms of infective dose, the mostly virus dose and the culture dose. He has demonstrated also that the washed culture differs from the unwashed culture. There are three possibilities there, and they are very, very unreliable, I feel.

Dwelling upon the development of toxins in connection with the blackleg bacillus, we must try very hard to demonstrate the distinct toxic value of the toxin. We can call it filtrate or aggressin, artificially, but we must test the culture there, which can be done by testing on guinea pigs in graduated doses. Then we should test out the anti-toxic value of anti-blackleg serum. I think that will be of more value than the serum test. If we test out the suspension of any blackleg serum, then we will have a test for the artificial aggressin or filtrate. I am firmly of the opinion that the artificial aggressin differs from the natural aggressin only in the fact that the toxin in the artificial aggressin is covered. For the artificial aggressin and the anti-blackleg serum we will have to work for an anti-toxin test, and I think that is where lies our problem in standardizing these two products.

I should like to ask Dr. Goss why he allowed an interval of fifteen hours between the injections of two materials. In tests we have made we have found it a very satisfactory procedure to limit the infectivity dose to two drops of fresh exudate from a guinea pig, and exposing those two drops to variable doses of the anti-blackleg serum, starting with two-tenths cc and going up to 1 cc, incubating it for an hour, and afterward injecting that into guinea pigs. That will give you a reading as to the value of the serum, a good serum given in a dose of two-tenths cc against two drops of that infected material. That infective material is very stable. You can always get fresh exudate from a guinea pig that has just died, and in that way you can standardize your serum dose. But, as I said before, I don't think that is a reliable test for the anti-toxin product.

DR. BREED: I would like to ask Dr. Goss if he knows of any record of the blackleg virus being isolated, getting it in a dry,

powdered form. I should also like to ask Dr. Reichel if this exudate from guinea pigs is free from organisms or not.

DR. GOSS: In reference to the use of immune serum, we have used serum from a horse immune, not from a normal horse. That work, however, was done before we approached a point that was satisfactory. Since then I have not tested. The normal horse blood I thought more easy to procure than under other circumstances. I don't know the value of the immune horse serum to this extent.

In regard to Dr. Reichel's question, the fifteen hour period in arriving at these experiments—I think you will all appreciate that usually a great many tests run, of all kinds, which do not seem to come out satisfactorily. In various tests we fell upon fifteen hours as a satisfactory time for the serum to produce passive immunity. That is the only excuse I can offer for using fifteen hours.

As to the immune serum being tested with toxin, or, likewise, a toxin being tested by the use of an immune serum, we have been testing, as shown, our immune serum against virus—immune serum is usually used against the virus, which, of course, develops there a toxin. In the field it has been very successful when we have produced it by testing it in this manner; and on that account we have not changed the method for testing it, and as the immune serum has no great future, as I can see, I have not seen fit to change the test—that is, to test it against the toxin. Another reason is, we have not been able to develop a uniform toxin, and have tested our toxins against one serum which would be used for them.

In answer to Dr. Breed, we have not evaporated the toxin itself.

CERTAIN ASPECTS OF THE PATHOLOGY OF SPAVIN.*

F. A. GOLDBERG.

DISCUSSION.

DR. GEORGE H. BERNS: I don't think I can say anything on this paper except that it is an entirely new departure, as to the cause of spavin. We were taught thirty or forty years ago that spavin was always caused by sprain,always traumatically carried.

*See November Journal, page 136.

Now Dr. Goldberg demonstrates that there are larvæ and many other causes; and it would seem that any pus activity, in any part of the body almost, might be productive of spavin formations; and that is the point which I think Dr. Goldberg has pretty clearly demonstrated. To me it is entirely new. I never thought of it for a moment. But it seems quite reasonable, because we do know that pus collections in almost any part of the human body will produce rheumatic arthritis—unfortunately, I am suffering from an infliction of that kind temporarily. I have not given the subject any thought. It is brand new to me.

I was much pleased to hear the paper, and was greatly interested in it. Men who have given the subject more attention and study than I have are probably in a much better position to discuss it.

Dr. Pierce: He mentioned umbilical infection, which may lie latent for two years or more. I would like to know if there is any way in which to anticipate that or avoid it.

Dr. Murphey: One or two questions I would like to have answered. I certainly enjoyed this paper very much. One question is with regard to the primary lesions of necrosis which were infiltrated with lime salts. The statement was made that the process was not arthritis primarily. I cannot understand how the lime salts got in there otherwise.

One other thing I would like to know is, whether it is considered that these conditinos are mostly ostitis or arthritis primarily. I did not hear quite all of the paper.

Dr. Goldberg: Spavin is a chronic condition, and the final outcome of it is a complete osseous ankylosis of the hock joint. In order to bring this about it requires a considerable length of time. We will assume that the cause is an infection. If the infection is severe, it takes but a short time for lameness to develop, and for visible structural changes to occur in the joint. If the infection is mild, it takes a considerably longer time, perhaps a year or more.

Another thing to be considered is that the changes in the joint may be quiescent, as I pointed out. They were active at one time, but they are now merely history. In other words, bone and cartilage do not proliferate very readily. They may heal apparently—that is, there may be incomplete healing—especially if you have an erosion in the articular cartilage. That erosion is most likely to remain even after the process has subsided, and after the irritant has been removed. In that way it is possible

for an umbilical infection, if it is very mild, to be carried into the joint when the animal is very young, and it may be a year or two before the process of spavin—that is, osseous ankylosis—has been fully developed. In many cases complete ossification is not present.

The manner in which lime salts are deposited in tissues is not yet settled. Many claim it is a sort of saponification. It is a chemical process, at any rate. Lime salts are usually deposited in tissues that have become necrotic, and calcification is one of the sequelæ of necrosis. Calcification in the articular cartilage occurs very often. The lime salts are not deposited from the bone directly; it is simply a chemical process that takes place in the tissue, perhaps through the circulation. It may also take place in an exudate of long standing, where the young connective tissue cells often make use of the lime salts, depositing them into their intercellular substance and thus be transformed into bone. That is how ossification is said to be brought about.

Eberlein claims that all spavins begin as an ostitis primarily and work up into the articular cartilage. In most of the cases I have seen—and I have seen nearly a hundred cases—the origin seemed to be in the joint. In the later stages it is impossible to tell whether the process began in the sub-chondral bone, or in the cartilage. In order to determine this point the process must be studied in the very early stages.

Articular cartilage is non-vascular tissue, and a great deal of work has been done on inflammations of the cornea. Mild irritation on the cornea calls forth some wandering cells, and proliferation of fixed tissue cells, while more severe irritation calls forth blood vessels, which grow into the cornea from neighboring vascular tissue. It is possible that the articular cartilage reacts to an irritant similarly to the cornea. It is possible, therefore, that the vascularization of the articular cartilage is due to an irritation in the joint and not in the sub-chondral bone.

DR. MURPHEY: The necrosis was shown on one slide to be primarily arthritis, and I asked Dr. Goldberg the method by which the lime salts got in at this point as shown on that slide, whether they did not come from the bone through the circulation. The circulation in the cornea is not to be compared here.

DR. GOLDBERG: The circulation of the articular cartilage is not very clear. Some have demonstrated spaces between the cartilage cells, but others have disproved it. I attempted several experiments on this point. Various dyes were injected into the

joints of rabbits and the joints were subsequently examined. It was found that the entire articular cartilage was stained with methylene blue ten minutes after this dye was injected into the joint. It was impossible to retain the stain in the tissues so that they might be examined microscopically. This was due to the strong acid necessary for decalcification of the bone. Acid as well as alkaline dyes were used with the same results. At present it is considered by most histologists that the nourishment to the articular cartilage comes by means of the blood vessels that are in the sub-chondral bone, and that the cartilage imbibes the food from the tissues suited to it. Calcification in the articular cartilage in this sense may come from the bone, but this is not due to a primary ostitis.

DR. BIRCH: In regard to the treatment of spavin, it is well known that the first principle of the treatment of spavin is: rest. And in looking at some of those slides, where that erosion has taken place, I think it is a very good object lesson as to why rest is desirable under those circumstances.

There is one other thought. Among cattle or horses, I could not say which is the most likely to umbilical infection; but the thought has occurred to me, in comparing the two, that if spavin is due to umbilical infection it seems that the umbilical infection in one should be comparable with that in the other, and we should have something like the same amount of spavin, you might say, in cattle as in horses, whereas, as a matter of fact, we do not have the same amount apparent at least. Whether that is due to the fact that the horse at two or three years of age is put to work, and is subjected to greater strain; and also to the fact that we do not pay so much attention to lameness in the cow, I don't know. I should like to be informed.

DR. GOLDBERG: I should like to corroborate Dr. Birch, in that spavin is at least as common in cattle as in horses; it may not be in the form of an ossifying periostitis, but if you examine the joints of a number of cattle, you will find they are affected by the same changes as those described as spavin in horses. I do not think that in this country there is so much ankylosis of the hock joint in cattle as in Europe. This is possibly due to the fact that cattle there are worked more than they are in this country; but the various stages of spavin, you will find, are at least as common in cattle as in horses.

SWINE PRACTICE.*

C. COURTNEY MCLEAN.

Prefatory remarks by Dr. McLean:

I am not going to take up much of your time on swine practice. I am simply going to tell you what I do, and perhaps I can tell you a different method than what is taught, and I trust you may get some benefit from it.

The sow is undoubtedly the Queen of the Farm. There is no question whatever that she deserves more recognition than any other animal on the farm today. As I stated, an animal which is capable of reproducing 2,000 per cent—which is frequently done, a sow having two litters of pigs, and ten pigs to a litter, and raises them, is certainly a better investment than anything you have on the farm.

She requires gentle handling. The sow should not be bred as young as she is usually bred. She should not be bred at eight months old. It is a mistake. The sow should be nearer maturity, and ought not to be bred, especially in pure-bred stock, under a year old. The great losses resulting from farrowing is where they are bred under a year. I read an article in "Swine Herd" the other day which stated that in the State of Iowa a million are farrowed every year, and only seven per cent of them reach the feed lot on account of chills and other conditions that contribute to such a loss.

The farrowed sow should be in a pen that is constructed with a farrowing rail. There should be a farrowing shelf or rail outside the pen, to prevent her squeezing the pigs when she lies down. At the present time there are too many things contributing to the nervousness of the sow. Sometimes it is impossible to get in at the farrowing time. When a sow is nervous and humps up when approached, it is dangerous; she will lie down on the pigs. The proper course is to take a stool and sit down behind the sow, and have a jug of hot water in a basket and put the pigs in a basket as each one comes away. After the afterbirth passes you can replace the pigs.

DISCUSSION.

CHAIRMAN COOLEY: In your experience in dealing with the municipal question, with reference to our municipalities, what do you say with reference to garbage?

* See November Journal, page 90.

DR. MCLEAN: A garbage-fed hog is not as good as a feed-fed hog. I make this explanation: A hog raised under proper condition should weigh 100 pounds at 100 days old; the hog that has gained one pound a day is doing well. I have never yet had a garbage-fed hog to reach that.

There is danger in raising hogs on garbage, because you can't have the proper supervision over the collectors of the garbage. The foreign matter put in garbage, like tin cans, glassware and knives and forks and nails and everything imaginable, are anything but beneficial to the hogs. In enumerating the diseases of hogs I should have mentioned ptomaine poisoning. I have seen also a number of cases where hogs have eaten foreign bodies like nails and tacks and pins. The statement that was made by the previous speaker (Dr. Dimock) in regard to brine was a very truthful one. Salt in any quantity causes a violent enteritis in hogs, and kills them very shortly.

I made a statement very surprising, perhaps, to you gentlemen; but a hog is so much more intelligent than some imagine that if you pay the proper attention to the intellect of a hog it will repay you many times over. A hog is very nervous. With severe abdominal pains a hog will lie down and you can't get him to get up. He will suffer intensely. I don't believe there is a man living who can diagnose pneumonia in a hog, or any other condition; because, under any abnormal condition, the hog will breathe so rapidly you can't tell what it is.

DR. B. D. PIERCE: Do you feed the garbage raw or cooked?

DR. MCLEAN: I feed it raw, but in most cases it is already cooked, especially the garbage from restaurants.

DR. PIERCE: I refer to places where the garbage contains orange peels and tin cans, and they boil it all up.

DR. MCLEAN: My experience is that they throw in everything.

DR. PIERCE: The tin cans won't hurt so much as the orange peel, will they?

DR. MCLEAN: A hog that will eat orange peel is a pretty hungry hog.

DR. S. B. HENDRON, of Lewistown: I have been interested in these papers because I have been called upon to treat hogs in my territory. There is one point the Doctor spoke of, and that is in regard to farrowing the maturing sow. I believe the greatest loss has occurred along that line. Up to within a few years ago I believe we all allowed those sows to die—not only myself, but

other practitioners in my country. We now resort to the Cæsarean section, and we don't hesitate very long about it. I myself have given up using instruments on parturient sows. I have all the forceps and hooks for that purpose, but one can't use them; you get hold of the pig to pull him out, and you pull his head off or his foot off—that is all you can do. Parturition instruments are useful sometimes. When I am called upon to treat a parturient sow I first see if it would pig, and sometimes it will have two or three pigs dead, and sometimes all dead.

If a sow is weak and cannot stand an operation, it is foolish to operate. Our procedure, when mature, is this: If you are called upon to see a sow that is a good subject and in good condition—perhaps has some pigs, and perhaps has not—don't wait, but go right ahead with your preparation for the operation. I have them prepare a table and have it good and high—take a door off the barn and nail a board across; have them bring two big pails of hot water and a scrubbing brush and a towel; then get your cat-gut and needle. I have found that half the time was used in getting the hair from the wound. I don't shave the hair any more, but thoroughly scrub and disinfect.

Then, have three men. Always tie the hind legs with a rope, and then fasten them near you. If you fasten them away, then when a sow struggles she pulls away from you. I always have three men; I put one on the hind part, one on the head and one to govern the front legs. Then you have no trouble.

I make a bold incision, and am careful to keep away from the lumbar region. Make a bold incision because you have tough skin to cut through. First you go to the peritoneum; separate the first layer of fat with your fingers; make a hole in the peritoneum, always cutting out. If you have the incision too deep then your small intestine will come out. If you allow the sow to force the small bowel all over the table and all over your herself, you have too much time required in putting it back. Speed is the main thing in the operation. Close the wound up and get done with it. Have the incision just large enough for the pig to come through, and no larger.

The point the Doctor made about the bladder being ruptured is true. When I insert my hand to bring the pig out, with the uterus, the bladder is probably distended, and you can squeeze it out, and it gives you so much more space.

DR. MCLEAN: Don't you use an anæsthetic?

DR. HENDRON: I usually use a half tablet of H. M. C., sometimes a whole one. Grasp the pig and bring it out. I generally bring out the whole uterus, so as not to overlook one pig in one of the horns. I have two towels saturated with disinfectant, and lay it over the whole table and bring the uterus out. Have a basket to put the pigs in. In the majority of cases you will have live pigs. Remove them as quickly as you can. Suture your uterus with catgut. I have used silk, but catgut is as good. Bring the two serous edges together, so that in a few hours they will start to glue fast. If you put the two raw edges together they won't be so even. I allow water from a dipper to fall on the uterus. In putting it back be careful to get it as straight as you can. It is a little difficult to do that sometimes, but if you place it as you think it should be by putting back first one horn and then the other, and you will put it back pretty straight. Then I take braided silk and do not suture the peritoneum or muscles, but from the bottom up, and draw it together and tie it. I use oxide of zinc ointment to rub over the wound after that, and give the man a little to use each day; and usually it acts very well.

That operation is being done every day. I think that during the last week I did three. I don't often go back to remove the stitches, but tell the man that after it is healed up and he is satisfied it won't break out, to just remove the stitches. Many of my cases I don't see again, because they are so far away. One man I asked how his sow made out, said she was all right, she went up into the mountain for three weeks, and when she came back the stitches were gone.

The sow does not eat very well for a few days. I keep them on a liquid diet until they start to feel well. I think if that operation was practiced more frequently fewer sows would die. But I want to say, don't operate in a hog pen, because if you do you will fail. That has been my experience.

DR. BERNS: Why wouldn't it be fully as well to amputate the uterus and put a ligature around the uterus instead of taking the trouble of suturing the horn?

DR. HENDRON: I did at one time, but my success was not so good. I did amputate the uterus, originally, but the percentage of success was not so great.

President Cochran of the New York City Veterinary Medical Society gave a timely address at the January meeting of that body.

DIFFERENTIAL DIAGNOSIS OF THE DISEASES OF THE PIG.*

W. W. DIMOCK.

DISCUSSION.

DR. KINSLEY: Mr. Chairman and Gentlemen: First, I believe you will agree that the author should be complimented on this splendid paper. It has thrown light on a subject that some have been asking for for many years.

It was intimated in the paper, what has been known long since, that practically the only disease considered in swine is hog cholera. There has been some plea with the practitioner, and others in a position to know, that the other diseases of swine should be given consideration; and I was certainly pleased to have had the privilege of listening to this splendid paper.

There are some things that perhaps are subject to discussion, in what has been said. First of all, the general statement concerning the hemorrhages that are ordinarily considered as lesions of cholera, perhaps needs some discussion and perhaps some modification. There are those, you know, who claim hog cholera is practically a lesion-less disease in its pure form, and that the lesions usually associated with cholera are the result of complications rather than the result of the virus itself. We can accept or reject that statement, as we wish, and I wish to especially call your attention to the statement concerning the petechial hemorrhages on the kidney. They are, in my judgment, not evidence of hog cholera. We find hemorrhages associated with cholera when there are usually or frequently no other principal complications, but bear in mind those hemorrhages are also found in infections and in the group that the Doctor has designated as mixed infections particularly.

Petechial hemorrhages are also found in the septicemia form of necrobacillosis, or associated with the bacillus of necrobacillosis, and perhaps in other conditions. In making the differential diagnosis of diseases in swine this should be borne in mind. And this should be obtained in the history. It is not always possible that simultaneous immunization will prevent these lesions associated with hog cholera. The swine may die of some other complication, and the diagnosis given as hog cholera by the one making the diagnosis.

*See January Journal, page 321.

In hog cholera, clinically, there is ordinarily a rise in temperature, the hog cholera victims having usually a temperature of from 105 to 108 Fahrenheit. In hemorrhagic septicemia it is hard to find that temperature. It rarely is above 105 Fahrenheit.

One other statement, in regard to the lesions mentioned under hog cholera, is in regard to the button ulcer proposition. I don't think it is anything else than a complication of hog cholera. I believe it is usually due to the bacillus necrophorus and sometimes to another organism. So, I don't believe the button ulcer should be considered as typifying hog cholera.

In the pneumonia discussion the Doctor in his paper has three or four types. In the one I am pleased to call secondary pneumonia, associated with cholera, there is usually not much difficulty to differentiate it from hemorrhagic septicemia pneumonia. The hog cholera pneumonia is a purely croupus type, usually involving the acrotic or cephalic lobe or portion of it, whereas, in hemorrhagic septicemia we find the larger portion of the lung involved. We may designate it as the ordinary type, but usually with an extravasated exudate similar to pleuro-pneumonia in cattle.

The hemorrgahic disturbances in swine are extremely difficult to diagnose clinically in the ordinary swine because of the thickness of the chest wall, due to a layer of fat. So that, I hope some of our good clinical diagnosticians will give us a definite method for determining pneumonia in swine. Personally, I have found it almost impossible to make a satisfactory examination of the contents of the thorax clinically. If any of you have any means of doing it I certainly would be glad, and I think others would be glad, to hear it.

I thank you, and wish to compliment the Doctor on his splendid paper. (Applause.)

DR. BIRCH: I would like to just say, with regard to making the clinical observation of swine, that I think a bad mistake is often made by slapping our hands and stirring them up. By so doing we automatically increase the pulse rate and respirations, and if we chase them long before catching them we also increase the temperature, possibly as much as two degrees, in a short time. I don't want to discourage any one who thinks he can make the same observations on a hog as he can on a horse, but I don't know any one who can carry it out. As Dr. Kinsley has said, the walls of the thorax are so thick. I don't know any better

method of diagnosing pneumonia than by making the hog walk some distance, and then observing the respirations.

In making observations of tissues in pigs, I have frequently observed in pig No. 1, then No. 2, No. 3, No. 4, No. 5, No. 6, No. 7 and No. 8; and then starting in with No. 1 again—it is surprising how high the temperature has risen just catching the pig in the pen. We have raised the temperature in a shaded alleyway, with the atmospheric temperature at 70 degrees—I would not want to quote the exact time and exact increase in temperature, but it was more than two degrees and the time of chasing the pig was less than two minutes.

With regard to what was said in the paper about observing the lesions—the difference in lesions, whether a hog is bled out for examination or whether he has died, there is a very important distinction to make in making the diagnosis. It is very easy to assume on microscopic examination that we have infection in a gland where a hog is not bled out, whereas, we would otherwise find it was hyperæmic and would disappear if the hog had been bled out.

In hemorrhagic septicemia or that form of swine plague—I don't know how that has been done, I would like Dr. Kinsley to explain how that has been done and who has done it. We are not sure we have the filterable virus present. In one herd we started on—and the reason we started the work, in fact, was because we thought we had a pure hemorrhagic septicemia infection. We killed rabbits with the bi-polar organism. The serum treatment did not seem to have much effect on the progress of the disease throughout the herd, but we filtered the virus and filtered the blood and injected filtered blood in susceptible pigs, and we produced hog cholera.

In other cases we killed, although swine plague was present, we found the disease was from filtered virus, and one would certainly call that an outbreak of swine plague, and it certainly was not.

With regard to the button ulcer, in establishing there the filterable virus we have two things to establish: First, how it was contracted; and, second, the length of time from the first sickness of the animal until this examination was made. The virus does not under ordinary circumstances lose its virulence—it stays in the blood at least a limited time; whether the examination for virus was made from the blood or not, I don't know. I should like to know.

DR. ROBERTS, of North Carolina. I would not want to be pinned down to make a positive statement that there were no such things as lesions produced by the filterable virus, but through twenty years' observation on pigs supposed to die from hog cholera I have found that if the lesions are produced from filterable virus they are very few and far between.

I believe the speaker who preceded me struck the keynote in regard to the lesions supposed to have come from filterable virus. I believe we have very few of these so-called mixed infections, infections that are in themselves pathogenic, without some pathologic condition in the animal making it susceptible, or the organisms themselves becoming pathogenic and thereby producing the lesions attributable to hog cholera.

I want to say, for one, that I don't see for the life of me how we can offer this filterable virus except to get button ulcer from them or hemorrhages from them. I am not stating facts, but I am stating what has been my common belief, and I believe the logical way to reason the effect from what we call cholera, what are called lesions due to cholera, and what are really lesions due to other conditions than the cholera. And I don't believe these lesions would be present if the animal's condition or some other circumstances did not render the animal susceptible and pathogenic for it.

CHAIRMAN COOLEY: I am satisfied to say we have listened with very great pleasure to this fine, exhaustive paper on this subject, as well as the discussions on it; and that they will be of great benefit to the man who is in general practice and has a great deal to do with hog cholera work.

DR. MURPHEY: There is one thing in regard to hemorrhagic septicemia—a man had thirty sows, and 210 pigs; and he came in and said he lost one sow and seven pigs. He said they were sick, but they did not act just like cholera; they seemed to have something the matter with their mouths; they were champing all the time, and the symptoms described in this paper under hemorrhagic septicemia were present. A bi-polar organism was found, and the pigs not showing symptoms were vaccinated with hemorrhagic septicemia vaccine, and the sick pigs and sow were treated with anti-hemorrhagic septicemia serum. There was one sow which died after the treatment was instituted. That was the second case of pure, uncomplicated hemorrhagic septicemia we had this summer to deal with, and I don't doubt we have hem-

orrhagic septicemia existing in Iowa as a disease separately from hog cholera.

DR. BIRCH: I would like to ask Dr. Murphey what the ordinary death rate in hemorrhagic septicemia would be when allowed to go without treatment.

DR. MURPHEY: In the first outbreak it was some time before treatment was instituted—which was only a vaccine, no serum, and the loss was about 15 per cent. But sanitation was instituted at once on the first farm, and it was impossible on the second farm.

LAMENESS OF OBSCURE ORIGIN.*

GEO. H. BERNS.

In introducing his subject, Dr. Berns had the following to say:

The horse has no longer the center of the stage, and very little has been said about equine surgery and equine medicine at this meeting. However, there are still some horses left, and some of us still feel some interest in the horse.

When I accepted a position on the program, when I was asked to prepare some simple, practical little saying on the subject of equine medicine or surgery, it occurred to me that lameness would probably interest some of you. Having been in the habit of referring to all lameness that is hard to diagnose as "obscure lameness," I have, from force of habit, no doubt, referred to my title as "Obscure Lameness and Some of Its Causes." But it is a misnomer. The lameness is not obscure, but the origin and its causes. Therefore, I would change the printed title to read "Lameness of Obscure Origin and Some of Its Causes."

(On page 221 of the December Journal, after the sentence "In cases where one heel and quarter were contracted, the bar and sole on the affected side only were trimmed down." Dr. Berns interpolated as follows (but which did not appear in his manuscript), "We used the Roeberge spring for many years, because we had no other. The principle was all right, but we improved their efficiency very, very materially by leveling down the sole, by leveling down the bars until they yielded to the pressure of the thumb, and then substituted an artificial sole and an artificial bar, so to speak. The artificial sole was substituted by the intro-

*See December Journal, page 217.

duction of a heavy bit of leather over a packing of oakum and tar; and in this way we were successful in restoring the feet to a normal condition.")

DISCUSSION.

DR. R. C. MOORE: I certainly appreciated Dr. Berns' paper. While it is a subject we do not have to deal with as in former days, nevertheless we have not yet outlived its usefulness. We have many good horses left, and as long as we do have them this will be an important matter.

I was glad to hear Dr. Berns lay stress on the necessity of paring the foot after taking away the horn tissue. My experience has been that after taking away a large amount of the horn tissue, whether on the sole or the side of the foot, the horn tissue soon dries; and no matter how thin it can be pared the hardness of that tissue will have increased in a few days, and it will probably become just as detrimental to the underlying tissue as the heavy wall was before.

Dr. Berns has clearly carried out the thought—to protect that by a pad until the horn tissue becomes thick enough to protect the underlying tissue from atmospheric conditions, et cetera.

DR. TORRANCE: It is not practical to put the spring into the horse's foot without tightening. The ordinary irregularities of the feet, et cetera, will cause those springs to become so jammed by constant hammering that we are in danger of losing them. The leather is as much used and needed for them as for keeping the tissue moist. I believe the packing and moisture have almost as much beneficial action as the springs. I have used the Mackey spring for a horse which had a real sharp pinched heel. The Mackey spring, as made in Baltimore, is considerably superior to any Roeberge I have ever seen, and I have had a lot of success by using the Mackey springs and then turning the animal out.

I have put them into the heel when it was so sore the horse could hardly stand. And I have put it behind the heel three-quarters of an inch, and sometimes more, and have never put it in that I did not keep the original shoe, so as to show myself, as well as the owner, the change.

DR. HOPPER: I enjoyed the paper as presented by Dr. Berns. I might say I have had some experience along those lines. In severe cases of contraction I do not follow the method of paring out the sole. I think it is a great mistake in opening your heels. My endeavor is to get that frog and wall to be a common mass.

Dr. Berns mentioned contractions, either inside or outside. I have never been able to find how a spring is able to correct that condition. It was suggested by our mutual friend, McDonaugh, and was practiced very largely by us—where we had an inside or outside contraction—on that particular side the spring was taunt. The other side was fastened in the wall, and a clip placed directly at the heel. We must quite understand that the spring is to avoid any strains, and it will equally spring the normal and abnormal sides; and the results are negative—you don't correct the condition. But by placing a clip in the inside of the heel of the shoe on the affected side—following that method we absolutely could correct contractions at any time and at all times. I found that very successful.

Dr. Berns: I don't know whether I made myself perfectly clear on this point, but I certainly do not want you to harbor the impression that I favor opening the heels under ordinary conditions. On the contrary, it is one of the worst things you could do. But where you insert a spring your spring does not have very much chance to expand on the foot unless you open the heel; and it is a perfectly safe procedure while the spring is in the foot, but the moment the spring is removed that opening of the heel is certainly dangerous.

Dr. Hopper tells us that by placing a clip on the inside of the heel of the shoe on the affected side it will have a tendency to prevent contraction — by leveling off the upper surface and placing a clip on the inside.

Dr. Hopper: I place my clip on the normal side and just carry the shoe out there to where it should be.

Dr. Bern: That principle I have never adopted, but we have been fairly successful in expanding a contracted heel, when it existed on one side only, by extending down the bar on that side, and thinning down the sole on that side, until it will take pressure by the thumb; and the spring had a better chance of expanding the side.

SOME IMPORTANT POINTS IN CASTRATION AND SPAYING.*

WM. M. BELL.

Before reading his paper Dr. Bell made the following introductory remarks:

The first point is, I have found it very handy in my card file to make a list of the equipment and instruments for certain operations, and consult that list before doing an operation of any kind, a castration or whatever it might be, and see that I do not find myself at the place of operation without some important instrument.

I carry a bandage in hot weather, when I have much operating to do, to keep above the eyebrows and glasses to prevent the perspiration from obstructing the view. Also, in our country, if we have a bunch of horses or mules that are sometimes wild, I carry three lassos, and have practiced enough to become somewhat expert. I throw the three lassos, and leave it to my assistants to carry out the twitch.

CASTRATION OF THE HORSE OR MULE.

NECESSARY EQUIPMENT.

Overalls, operating gown, bandage, lasso, twitch, casting harness, pans, soap, clean water, towels, hand brush, nail cleaner, antiseptic, tincture iodine, absorbent cotton and carbolized oil.

INSTRUMENTS.

Castrating knife, emasculator, ecraseur, needle and suture, hemostatics, aspirating needle, rubber tubing and bulb syringe, hernia clamp.

PREPARATION.

The instruments having been sterilized, are placed in a creolin or other antiseptic solution, and the operator's hands surgically cleaned.

PREPARING THE PATIENT.

In the normal horse or colt I prefer the standing position. The twitch is applied and the operator approaches the left side of the patient, washes the scrotum, paints it with tincture iodine and wipes it with absorbent cotton.

*Presented at 55th Annual Meeting A. V. M. A., Philadelphia, 1918.

Operation.

Standing in the above position the operator grasps the right testicle and opens the scrotum with a free incision. The tunica vaginalis is cut away where it attaches to the testicle with the knife, and the testicle removed with the emasculator close to the testicle, removing nothing but the testicle and its attachments. In my opinion it is bad practice to mutilate and mangle the tunica vaginalis with the emasculator or ecraseur. I do not believe it to be good surgery.

The Mule.

In all respects the operation on the mule is the same as on the horse—with two exceptions. I prefer to cast the mule and remove all of the tunica vaginalis that covers the testicle. I remove the tunica vaginalis with the knife and the testicle with the emasculator as close to the testicle as possible, leaving the end of the cord, artery and vein hanging below the end of the severed tunica vaginalis, thus making it almost impossible to have a water bag.

The Cryptorchid and Monorchid.

The testicles of solipeds are formed in the abdominal cavity and the developed testicle remains in the abdominal cavity maintained there by the gubernaculum testis, which, after birth, draws it into the abdominal ring, where it remains for a brief time (usually from birth to six months after), when the gubernaculum testis becomes a part of the cremaster muscle. In some cases the testicle does not descend, but remains in the abdominal cavity during life or until removed by operation.

The Operation.

In this operation the animal must be cast and secured with his hocks fully flexed and well spread apart. After securing the subject in the proper position on his left side, I prefer he be rolled upon his back and secured in that position.

On Which Side to Operate.

If the patient has never been operated on this is easy, but, as is often the case, one testicle has been removed and the other side opened and a search made for the testicle, therefore there is a scar on each side, and it becomes a more or less knotty problem. In many cases this is easily solved by grasping a handful of the skin and deep connective tissue just over the scar with the left

hand and feeling for the end of the spermatic cord with the right hand. When the end of the spermatic cord is detected on one side the testicle must be on the other, and in nearly all cases it can be determined in this way.

The Operation.

The subject, instruments and operator being properly cleansed, make an incision over the external inguinal ring (I am of the opinion that, properly speaking, there is no scrotum), about four and one-half inches long through the skin and dartos. Separate the connective tissue with the fingers from the external to the internal inguinal ring. (I am also of the opinion that there is no inguinal canal.)

An examination of the internal ring will determine whether the testicle or epididymis is in the ring. If the epididymis is on the outside of the ring divide the tunica vaginalis and attempt to remove the testicle by traction on the epididymis, but do not open the internal inguinal ring. When the testicle can not be withdrawn with reasonable traction let go of the epididymis and after lubricating the parts with carbolated oil pass the hand into the incision, using the right hand on the left side and the left hand on the right side. Ignore the internal inguinal ring, so far as getting the testicle through it is concerned.

Where to Make the Opening Into the Abdomen.

We can not go to the outside of the internal ring, as there is no room between the ring and the large muscles of the thigh, and it is not practical to go in front of it. We can go to the inside of the internal ring or behind it. If we go to the inside we must make a complicated opening or there will be an escape of intestines, if we go behind the ring we must go behind Poupart's ligament, as it forms the back part of the ring. Where the epididymis is not through the internal ring I prefer to go back of Poupart's ligament, and it is there I make the opening in about 95 per cent of my operations, making the opening upward and forward, so when the animal stands on his feet there will be a curtain hanging over the opening. This will not only help to prevent adhesion, but reduce the chance of prolapsus. I usually enter the abdomen with the first two fingers, but when I deem it necessary I don't hesitate to pass the entire hand. I make the opening with the first finger, on the patient's inspiration. I do not believe the peritoneum perforator to be of any prac-

tical use except to fool and mislead people, if that could be called practical.

Finding the Testicle.

This is supposed to be the most difficult part of the operation, which is true if the opening is not made in the right place, while if the opening is in the right place it becomes very simple. The hard, cord-like feeling of the spermatic cord, the characteristic feeling of the epididymis, the flaccid, yet firm-like, feeling of the testicle and the location of the gubernaculum testis are sufficient to locate the testicle. When found it is withdrawn with little difficulty and removed with the emasculator or ecraseur. Except when cystic or deformed by adhesion, I use no packing or sutures, but have the animal exercised five to ten miles every day to assist drainage and prevent adhesion.

Important Points in Spaying.

The mare can be spayed in the same way the ridgling horse is castrated, bringing the ovary to the outside in the groin and ligating it in plain view or removing it with the emasculator.

In spaying heifers I prefer to go through the linea alba and remove the ovaries with a curved scissor about ten inches long. In spaying any animal I think it bad surgery to remove any part of the uterus unless it presents a diseased condition. I have attempted to set forth in this paper what are, in my opinion, important points in castration and spaying, on which, I freely admit, there is a difference of opinion among good operators.

DISCUSSION.

Dr. Rogers: I don't know whether my experience will coincide with that of the essayist, but I always put my bitches on what I call my spaying board. When the animal is lying down she is suspended by the hind limbs. I make the incision about the middle of the umbilicus, between the teats, and, while it takes a little longer, I have never in thirty years' practice had any difficulty with protrusions of the intestines.

Another point I have observed in the spaying of bitches that will be of some service to an operator not very familiar with the work is this: As you have the bitch on the board and you are standing here, when you put your finger in the cavity—I never infected bitches with my fingers—you almost invariably find the uterus lying toward you. I don't believe I have ever found it

lying across the median plane, and nine times out of ten as you put your finger in there and hook it up you will almost invariably hook up the uterus.

DR. DUNPHY: I would like to ask for information. Where he made the incision in the female, when he passed his hand up behind Poupart's ligament—whether he made the incision in the region of the udder.

DR. BELL: Yes. I made the incision in the groin back of the udder, down through the connective tissue, separating it with the two fingers, the first finger of each hand, and then pass the hand down back of Poupart's ligament and make an incision the same as in the regular horse.

It may be necessary to enter as much as three fingers or possibly four, but rarely the thumb, to pick up the ovary. You bring it right straight up and ligate it in plain view.

You have got to go on both sides. I operated first on a heifer successfully and turned her loose. She got well without trouble. Some time later I operated on a mare in the same way, and had her exercised and treated and she got well without any trouble.

Understand, I do not claim this to be a more practical method than going through the vagina. I merely mention it as one of the things in operation that can be done. If there is any reason why you want to bring the ovary to the outside and ligate it, ligate it perfectly safe before removing, you can do this perfectly well in this way. You can do the same on the fetus.

I kept a fetus in a jar, and any time I had to castrate a horse I took the fetus and ran my hand down over it so as to refresh my memory as to where to make the incision.

THE BLAND REPORTS UPON EPIZOOTIC ABORTION EXPERIMENTS.

W. L. WILLIAMS.

The Bland reports upon abortion experiments are being so extensively cited in America that it seems desirable to place before the readers of the Journal a summary of them based upon a careful analysis.

The first group of experiments was "carried out in fourteen herds during the period 1911 to 1913." The second report reviews the 1911-1913 data and adds thirteen herds.

The reporter, Mr. G. R. Bland, is Agricultural Organizer for Oxford County, England. Apparently he is not a veterinarian, but seems to hold a position analogus to that of county agricultural agent or adviser in the United States. The experiments of Bland are based upon the researches of Sir John McFadyean, Principal of the Royal Veterinary College at London, and Sir Stewart Stockman, Chief Veterinarian to the Board of Agriculture and Fisheries of Great Britain. The principal publications of McFadyean and Stockman consist of a report and appendix thereto, which appeared in 1909, constituting an official report of a commission appointed by the British Government. Sometimes their report is cited as that of "The British Commission"; sometimes reference is made simply to McFadyean and Stockman. The Bland experiments were carried out in Oxfordshire, in order to test the value of bacterins or killed cultures of B. abortus used on pregnant, and living bacteria upon non-pregnant cows, for the control of abortion. The bacterial cultures for the experiments were supplied gratis from Sir Stewart Stockman's laboratories. A number of veterinary practitioners assisted by administering the bacterins and vaccines hypodermically.

The reader must bear in mind that data on abortion in cattle are at best vague and require unusually careful analysis before attempting to reach even a moderately safe conclusion. All investigators know that abortion—the expulsion of the dead fetus from the uterus—is not a safe or even a good criterion by which to measure the degree of loss caused by infections invading the genital tract. Observed abortions occupy a middle ground among the ravages of genital infections. When the infections are very severe and early, conception is thwarted or the embryo is destroyed and absorbed, or expelled when too small to be noted. The infection, acting somewhat more slowly, may cause a visible abortion. Later, however, it may cause a metritis, but premature birth or birth at full term occur. So the abortions observed can only relate to losses occurring in a certain manner and at a certain epoch, and can give only a very poor, and often misleading idea of the health of a herd. Recently I have suggested elsewhere that some definite standard for measuring results in this field should be established, and have proposed that in dealing with the diseases of the genital organs we should take as a standard the average number of months required for the production of a healthy calf, and that our ideal should be one healthy calf per cow for each twelve months. We may then speak in terms of

breeding months, and can take into consideration each pregnancy existing at the beginning or end of the experiment, with the duration of the pregnancy, and thus arrive at an approximate idea of the actual efficiency.

Bland's method of computing the results is not made clear. In the 27 herds covered by the two reports, it is stated that 863 non-pregnant cattle were vaccinated with living abortion bacilli, 112 pregnant cattle with killed bacteria (bacterins), and 712 were kept as controls, making a grand total of 1687 individuals. Bland states that many of the dairymen grow no calves and must frequently purchase cows or heifers of dairy age. No data are submitted to show the average duration of time the animals were under observation, and consequently the most vital fact of all, the rate of production, is not revealed.

The tabulated summary on page 15 of the 1914-1916 report indicates that 600 cows and heifers were inoculated with live abortion bacilli, of which 99 (16.5%) were sterile, 29 (4.8%) aborted, and 472 (78.7%) "calved correctly." While the average duration of experimentation upon the 600 animals is not stated, one may assume, with considerable risk of error, that it was for a period of approximately two years, or for the 600 cows 14,400 breeding months, during which time 472 cows "calved correctly"—one calf was born for each 30.5 breeding months. This is equivalent to 39.3 per cent of the ideal efficiency of one healthy calf each twelve months.

Bland fails to define "calved correctly" and offers no gradation between that and abortion. Somewhere, there must have been premature births and births at full term with retained placenta, but these are apparently merged into "aborted" or "calved correctly" and are hidden from view.

During 1910 the average rate of abortion in the herds of the 1911-1913 experiments is reported as 28.9 per cent. Of the non-pregnant animals inoculated with the live bacilli, 5.7 per cent aborted, 8.3 per cent were sterile, and 86 per cent "calved correctly." Of the pregnant animals given killed bacteria, 15.2 per cent aborted, 10.7 per cent were sterile, and 74.1 per cent "calved correctly."

Bland admits in a footnote that the number of controls barren is not definitely known. Hence the number of controls which "calved correctly" is also uncertain. If the figures submitted are approximately correct, the efficiency in the controls was 3.3 per cent better than in those treated with bacterins. Assuming

that these cows were under observation during two years, there would be in the cows inoculated with living bacilli one calf for each 27.9 breeding months and the breeding efficiency would be 43 per cent of the ideal of one calf each twelve months. By the same standards the pregnant cows treated with bacterins reached 37 per cent and the controls 38.7 per cent of ideal efficiency.

On page 11 of the 1911-1913 report it is claimed that the vaccination with live cultures *reduced* the abortions from 28.9 per cent to 5.7 per cent—23.2 per cent. Among the controls the abortion rate dropped from 28.9 per cent to 18.2 per cent—10.7 per cent. Without any explanation having been offered, it would appear that it would have been more nearly correct to have taken for comparison the abortion rate in the controls, making the equation of 18.2 per cent: 5.7 per cent, instead of 28.9 per cent: 5.7 per cent. In the 1914-1916 report, Bland states: "Briefly, in one season the treatment has cut down the number of cases of abortion from above 30 per cent to about 5 per cent," but he offers no explanation for the dropping of the abortion rate in the controls from over 30 per cent to 19.7 per cent. When the summary is further studied, it is seen that in the 1914-1916 experiments, among the inoculated cows, the abortions—4.8 per cent—with the sterility—16.5 per cent—equaled 21.3 per cent, leaving 78.7 per cent to "calve correctly," while among the controls 19.7 per cent of abortions plus 5 per cent of sterility equaled 24.7 per cent of losses, with 75.3 per cent which "calved correctly"—a difference of 3.4 per cent in favor of the inoculated animals. Taken in conjunction with Bland's statement that bought-in cows were largely used as controls, which regularly behave badly, the data apparently indicated an actual decrease in efficiency.

Similar results are shown by Stockman (Rep. 10th Int. Vet. Cong., p. 352) and quoted by Hadley (Bul. 296, Wis. Ag. Exp. Sta., Sept., 1918, p. 30) in which experiments with living cultures and bacterins are tabulated, showing the following results:

		Sterile etc.	Aborted.	"Calved Correctly."
Inoculated with live bacilli.....	594	17.0%	5.4%	77.6%
Controls	472	8.5%	21.4%	70.1%
Inoculated with bacterins.....	146	24.6%	15.8%	59.6%

As in the Bland experiments, so in those reported by Stockman, any apparent gain in the abortion rate with living bacilli is virtually counterbalanced by increased sterility, leaving a difference in final calvings of but 7.5 per cent.

A very remarkable showing by both Stockman and Bland is the large number of pregnant cows which "died, were barren, or were sold." It may be quite safely assumed that virtually all of these were "barren," though classed as "pregnant" at the time of inoculation. The much-vaunted abortion bacterins make a lamentable showing—less than 60 per cent of calves.

On page 7 of the 1914-1916 report, Bland states, "The majority of the bought-in cows appear to abort unless they were inoculated when empty. It is probable that the high percentage of abortions among the controls for 1914-1916 is due to the inclusion of these bought-in cows." In the United States, it is a common observation that cows or heifers which have recently been purchased and are moved into strange surroundings abort in much larger proportion than when kept in their usual quarters. On page 10 of the 1911-1913 report, Bland states, "In most of the herds, it was the exception for a cow which had once aborted to be kept and bred from again." As this is a general custom, the dairymen included in the Bland reports would probably buy aborters, which would be kept as controls. Taking these facts into consideration, the difference in the ratio of the 1911-1913 cows which "calved correctly" among those treated with the living cultures—86 per cent—and those left as controls—77.4 per cent—is not as extreme as at first appears. This is still better brought out on page 15 of the 1914-1916 report. It appears that, in the animals which were inoculated with living cultures, 78.7 per cent "calved correctly," compared with 75.3 per cent of the controls, a difference of 3.4 per cent in the two groups. The abortion rate is much lower in the inoculated animals than in the controls, but the sterility rate increases, so that the two counterbalance.

This summary of results raises the very appropriate and serious question of the effect of inoculating a non-pregnant breeding animal with living bacilli which have a selective affinity for the genital tract. Sterility, when due to infection in the genital tract, is, so far as I can see, due to a more virulent infection than is abortion, or it is present at an earlier date, and consequently works to prevent conception. Of course, when observed abortion is taken as the basis of computation, if one injects into a non-pregnant cow bacteria which will prevent conception, he lowers thereby the abortion rate. If it is concluded that the injections of the living bacilli in the Bland experiments lowered the abortion rate, then by the same standards the inoculations raised the

sterility rate and left the reproductive and dairying efficiency of the herd essentially the same. The 1911-1913 report shows that through errors in diagnosis 9 pregnant heifers and 5 pregnant cows were inoculated with living cultures. The abortion rate in the heifers was 11 per cent; in the cows, 40 per cent. The 2 aborting cows had aborted the previous year.

In the 1911-1913 report, the abortion rate following inoculation of non-pregnant heifers with live cultures was 5.7 per cent, sterile 7 per cent, "calved correctly" 78.3 per cent.

When McFadyean and Stockman (Report of the British Commission) inoculated pregnant heifers with live bacilli to cause abortion, 25 per cent aborted; when Bland inoculated pregnant heifers to prevent abortion, 11 per cent aborted, and among Bland's control heifers 13.7 per cent aborted.

Bland's reports show also that animals which have aborted one year are sensitized, not immunized, and are more liable to abort the following year than those which calved the preceding year. In the two reports, 183 cows which had aborted the preceding year and were inoculated aborted at the rate of 7.1 per cent, 24 per cent were sterile, and 68.9 per cent calved. Among 30 controls, 30 per cent were sterile, 30 per cent aborted and 40 per cent calved.

Of the 14 herds recorded in the 1911-1913 report, 7 herds, representing 29.5 per cent of the total animals, had discontinued the treatment in 1913. Of the 13 herds placed under experimentation in 1914-1916, 6 herds, comprising 78.9 per cent of the total number of animals had withdrawn. The reasons for discontinuing are not stated. So far as I have been able to find, neither McFadyean, Stockman nor Bland recommends the use of bacterins or vaccines except as an interesting experiment. No British maker of biologic products, so far as a search among advertisements in English journals reveals, offers bacterins, vaccines or other "cures" for "abortion."

SALICYLIC ACID AS A REMEDY FOR CHRONIC HOG CHOLERA.

DANIEL J. HEALY.
(Kentucky Agricultural Experiment Station, Lexington, Kentucky.)

That hog cholera has been continuously present in the United States for more than fifty years[1] is, in all probability, mainly due to the presence of the disease in a chronic form during the inter-

vals between epidemics of acute cholera. It is estimated that the average animal loss from hog cholera in the United States during the past forty years amounts to $30,000,000,[2] and competent observers estimate the loss from chronic cholera at from 2 to 20 per cent of this total. The plan of slaughtering infected herds, together with strict quarantine and disinfection of premises, is entirely unsuitable in this country.[3]

The diminished supply of pork and its high price, the increased cost of feed and the scarcity of labor, the fact that our Food Administration is negotiating with our Allies for the purpose of supplementing with pork the beef supplied to their armies, should stimulate the swine producer to remove, in so far as possible, every factor which limits his pork production.

That acute hog cholera may be an important factor limiting pork production has been thoroughly demonstrated. That anti-hog-cholera serum is the best preventive known at the present time for acute cholera also has been thoroughly demonstrated. Chronic hog cholera is a factor limiting pork production, and anti-hog-cholera serum is of no value as a remedy for the chronic form of the disease. In fact, Hoskins advises against the use of the serum in a herd where the disease has assumed the chronic form.[4] It is generally conceded that hogs which do not fully recover from cholera should be destroyed, as they remain a constant menace to newly purchased and to young animals.

Chronic hog cholera resembles, in a general way, the acute form of the disease, yet all the symptoms are much milder and the sick hogs live much longer than do those hogs acutely sick. In the chronic form of the disease the temperature is misleading, the appetite may remain normal for several days and then disappear altogether; as a rule, there is diarrhœa and marked emaciation, the animal finally dying after several weeks or months. The only postmortem lesions which are characteristic of chronic cholera are ulcers of the mucous membrane of the stomach and intestines. Many hogs recover from chronic cholera, remaining stunted in growth, unprofitable, and a source of constant danger to other hogs.

It is therefore evident that a remedy for chronic hog cholera would have a distinct value.

In 1881, E. C. Kerrison published an interesting article on salicylic acid as a remedy for foot-and-mouth disease,[5] to which the author's attention was called by Mr. O. M. Shedd, of this station. Salicylic acid is rather remarkable in that it is anti-

septic without being distinctly toxic. It has a powerful inhibitory action upon unorganized ferments. It is unstable in the body, yet when taken internally passes rapidly as sodium salicylate into the peripheral blood, and is as rapidly excreted by the kidneys. Synthetic salicylic acid may act as a cardiac depressant, due to the presence of ortho-, para- and meta-cresotic acids as impurities. Its action in acute rheumatic fever is almost specific, yet in gonorrheal rheumatism it is of no value whatever. In our own work we have found it remarkably effective in chronic hog cholera, yet with no value whatever in the acute form of the disease. The causative agents of hog cholera and foot-and-mouth disease being both filterable, suggested the possibility of the value of salicylic acid in hog cholera.

In December, 1914, Dr. Robert Graham, who was then in charge of our anti-hog-cholera serum laboratory, selected for the author ten shoats which were suffering with chronic cholera. These shoats would average about fifty pounds each. Dr. Graham was convinced that the shoats were of no value and should be destroyed. The shoats were placed together in a pen. Twenty grams of salicylic acid were dissolved in three liters of hot water and this solution, diluted with three liters of cold water, was placed in the feeding trough. The shoats drank this solution freely and with relish. Eighty grams of salicylic acid were suspended in twelve liters of warm water and two and a half liters of this suspension, diluted with an equal volume of cold water, were given to the shoats twice daily for five days. Treatment was then discontinued for two days. At the end of this period four of the shoats with continued high temperature were again given salicylic acid for six days; the remaining six shoats were turned out on young rye. The weather turned very cold, the temperature falling to 7°F. on the fourth night. On the fifth morning one of the six shoats, A.1430, was found dead. Postmortem examination showed double lobar pneumonia with no evidence of cholera. The remaining five shoats developed nicely and were sold one month from beginning of treatment.

Of the four shoats receiving the second treatment with salicylic acid three were normal four days after the second treatment was discontinued and were turned out on young rye. They developed nicely and were sold with the above five shoats. The fourth shoat, A.1416, did not respond to the salicylic acid treatment and died on the seventh day. Postmortem examination showed spleen, liver, kidneys, intestines and ileo-cecal valve

normal. Innumerable abscesses of anterior mediastinal glands. Purulent pleurisy of right side, the pleural cavity containing a quantity of pus. Purulent pneumonia of both lungs, which were riddled with abscesses. Smears made from the lungs did not show mycobacterium tuberculosis. Cause of death, purulent pneumonia.

The following is the temperature record of the ten shoats:

Day of Treatment	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	F		3		1	3	*										
A. 1424 ...	102	103	102	102	102	100											
	2	1	3	1	4		*.										
A. 1429 ...	103	104	102	102	103	103											
	1	1	3			4	*										
A. 1431 ...	103	103	102	103	103	102											
			4	1	3	3	*										
A. 1530 ...	103	104	103	103	101	102											
	4		1	2	4	4	*										
A. 1586 ...	104	102	102	102	103	101											
	2		4	1	4		1		2	2	*						
A. 1417 ...	106	102	101	102	104	103	104	104	102	102							
	1	3	3		3			4	1	2		1	*				
A. 1513 ...	102	104	105	105	105	107	106	105	104	102		102					
	1	2		3		1		1	1				*				
A. 1523 ...	103	103	103	102	104	103	103	102	102								
		2	3	4	2	1					†						
A. 1430 ...	101	103	103	103	102	102											
	3	4		4	1	2	3	4	4	3	3	3	3	3	3	3	†
A. 1416 ...	103	103	103	102	105	104	103	103	104	104	104	104	103	103	103	104	

*Turned out on rye.

†Died.

Eight shoats made complete recoveries and two died, one of double lobar pneumonia and one of purulent pneumonia.

Dr. Graham again selected for the author seven hogs which were suffering with chronic cholera. These hogs averaged about one hundred and sixty pounds each and Dr. Graham was convinced that they were of no value and should be destroyed. These hogs were placed together in a pen. Eighty grams of salicylic acid were suspended in twelve liters of warm water and two and a half liters of this suspension, diluted with an equal volume of cold water, were given to the hogs twice daily for five days. Two days after discontinuing treatment six of these hogs, evidently well, were turned over to Dr. Graham, who later used them as serum producers.

One hog, A. 1577, was so sick on beginning treatment that it refused the salicylic acid solution and died on the third day. The following is the temperature record of the seven hogs:

Day of Treatment	1	2	3	4	5	6
A. 917	2 104	103	1 102	3 102	1 102	103
A. 1999	1 103	2 105	3 102	2 101	101	2 102
A. 1587	4 103	3 102	2 101	101	100	1 103
A. 1978	4 103	3 103	101	102	1 102	3 101
A. 877	1 102	3 102	101	101	101	103
A. 6900	3 104	1 104	2 101	2 101	100	102
A. 1577	3 104	3 105	*			

Six hogs made complete recoveries and one, receiving no treatment, died.

To test the value of salicylic acid in acute hog cholera, three shoats were selected and given, by hypodermic injection, 2 cc each of cholera virus. Beginning four days later, salicylic acid solution was given twice daily until they were too sick to drink. These shoats all died within ten days, and postmortem examinations showed acute cholera in each case.

Again, four shoats weighing about seventy-five pounds each were selected and 2 cc of cholera virus given to each by hypodermic injection. Beginning five days later, salicylic acid solution was given twice daily until they were too sick to drink. These shoats died within twelve days, and postmortem examinations showed acute cholera.

Again, twelve shoats weighing from sixty to eighty-five pounds each were selected and 2 cc of cholera virus given by hypodermic injection to each. Beginning the following day, salicylic acid solution was given twice daily for five days. Eight of these shoats died within twelve days and postmortem examinations showed acute cholera. Twelve days after the administration of virus four of these hogs looked fairly well and were again given salicylic acid solution twice daily for ten days. These four shoats made complete recoveries. They were evidently developing chronic cholera and the second treatment with salicylic acid proved successful. The following is the temperature record of these four shoats:

Day of Sickness	10	11	12	13	14	15	16	17	18	19
A. 6036	4 105	7 105	2 102	2 102	4 102	3 102	4 103	5 103	1 102	3 102
A. 6041	3 104	5 104	6 103	4 102	103	1 103	2 103	4 102	103	2 103
A. 6051	2 104	6 104	4 103	1 102	2 101	4 102	5 102	6 102	102	4 102
A. 6058	3 104	2 105	2 102	1 103	2 103	2 102	3 102	5 102	4 103	2 103

Note—The second salicylic acid treatment from the 12th to the 22nd days.

SUMMARY.

Hog A. 1577, of the second experiment, may be eliminated, as it received no salicylic acid. This leaves twenty hogs with chronic cholera receiving salicylic acid. Eighteen, or 90 per cent, of them, recovered and developed nicely. On the other hand, fifteen hogs with acute cholera, receiving salicylic acid, all died.

It therefore appears that the author found salicylic acid a distinctly effective remedy in chronic hog cholera, although of no value whatever in the acute form of the disease.

REFERENCES.

[1] Farmers' Bulletin No. 834, August, 1917.

[2] Ibid.

[3] U. S. Dep't Agric. Bul. No. 584, October, 1917.

[4] Hog cholera and the use of serum, H. Preston Hoskins, Agric. Extension Division, Univ. of Minn. Spec. Bul. No. 2, July, 1915.

[5] Remedy for Foot and Mouth Disease, Sir E. C. Kerrison, Jour. Roy. Agric. Soc., Vol. xvii, Second Series, London, 1881, p. 89.

THE CAMOUFLAGED COW.

About the best story of the art of camouflage I have seen, and one that will appeal more directly to the readers of the Journal, is given in one of Glasgow's papers. Here it is:

So as not to ruffle the censor I have withheld for over two years this true story of the Western Front told me by an R. E. officer. In the earlier days of trench warfare a cow was killed in No Man's Land. For several days it lay between the British and German lines. Then our engineers had a brilliant thought. With steel sheets, other materials, and a judicious use of paint they constructed an object to resemble the dead cow and under cover of night substituted it for the rotting carcass. A tunnel and telephone were then quietly run out to the steel cow, which could hold a man comfortably inside; by using the eyes as spy-holes our men were supplied with a valuable observation post that enabled them to spot in safety and with accuracy the movements of the enemy at that part of the line. As showing how thoroughly the work of camouflage was done the outside of the imitation animal was each night smeared with a syrupy substance, thus attracting all day a dense crowd of flies, to the complete hoodwinking of the unsuspecting enemy.—Meat Trades Journal.

CLINICAL AND CASE REPORTS.

PARASITIC DISEASES.

S. HADWEN.

In the February number of the "Veterinary Journal" there appears an article by Captain E. M. Jarvis on "Exotic Lymphangitis," which he defines as an inoculable disease through the agency of Amblyommid ticks.

"The disease is characterized by suppuration, ulceration and necrosis."

Captain Jarvis believes that the lesions are caused by a variety of microörganisms, including "the Priesz-Nocard, the Cryptoecoccus farciminosus, the bacillus Necrophagus and Staphylococci," and that these organisms are introduced through the agency of the mouth parts of the ticks.

He is especially suspicious of those belonging to the genus *Amblyomma,* and he thinks that, as these ticks have very long mouth parts, they pierce the whole integument, and reach subcutaneous layers, where the bacteria can easily set up the lesions which he has described.

This short review of Captain Jarvis' work helps to illustrate what I am about to say concerning some troubles we have on the western slopes of the Rocky Mountains in Canada.

For a number of years past we have had outbreaks of fistulous withers and poll evil among unbroken range horses.

These outbreaks frequently appeared early in the season, and we have been at a loss hitherto to explain the predisposing causes.

There are, of course, a number of ways, known to all of us, in which these troubles begin, such as through blows and bruises; and the horse owners have had an idea that stallions were responsible for some of the trouble, since they frequently bite animals in the region of the withers. It is, however, impossible to explain in such ways the large number of cases that arise.

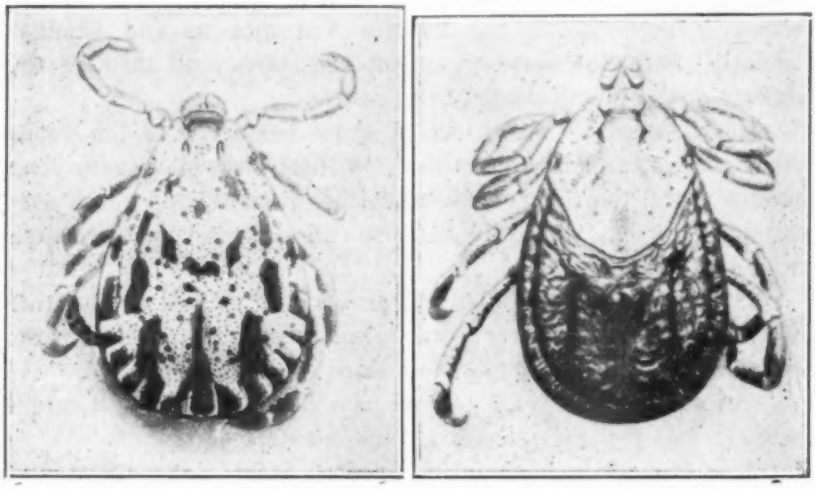
Since I have read Captain Jarvis' article I am convinced that ticks play an important role in producing fistulous withers. The following facts will bear out my contention:

Note: Part of address delivered at Philadelphia meeting of the American Veterinary Medical Association.

Dermacentor albipictus would appear to be the worst offender, and possibly also *D. venustus*. *D. albipictus* is commonly called the "Winter" tick; and in some regions of British Columbia, especially where poll evil and fistulous withers are common, horses are heavily infested with these ticks.

The favorite seat for attachment is along the whole length of the mane, from the poll to the withers. If an animal is examined when a heavy infestation is present, it will be noted that at each point of attachment there is a necrotic spot if the tick has been attached for a few days.

The necrosing action following the bites of *D. albipictus* on horses may be as great as the after-effects of the bites of *D. venustus*, which have been well studied in other animals. It is easy to see that these necrotic spots should be a favorable point of entrance for bacteria.



Dermacentor venustus (male) Dermacentor venustus (female)

In connection with the bites of *D. venustus*, it is noticeable that some time after the tick has attached, the animal feels a considerable amount of irritation, which is manifested by biting, scratching or rubbing. This, no doubt, further aids the introduction of bacteria. This pruritus persists for very long periods, and in man lasts for some months. A very good description of the necrosing and other effects following the bites of *D. venustus* is given in the Journal of Parasitology, by McCaffrey (1916).

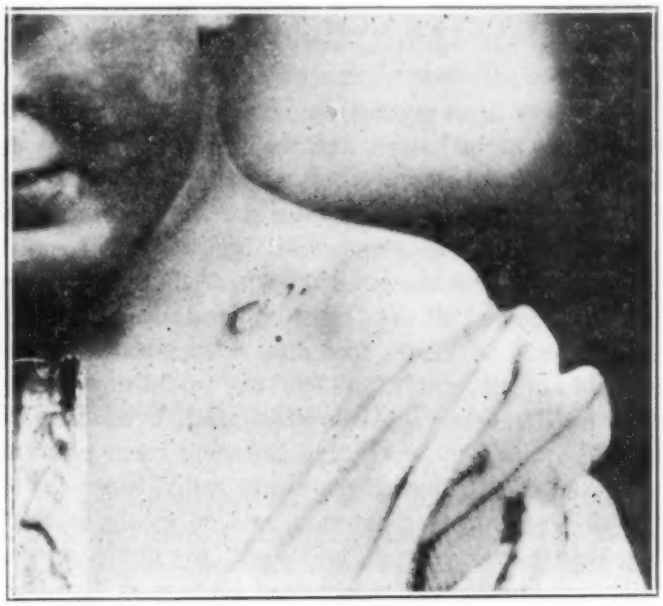
The accompanying photograph shows a child with a tick bite on the neck. The parents informed me that this child had been scratching the bite for over a year.

It is a well-known fact that ticks inject an anti-coagulin when they attach, and that they also produce a necrosing action to the surrounding tissues. Future experiments will decide just what occurs.

In summing up, it would appear that, owing to the habit which Dermacentors have of attaching in the region of the mane of horses, it is probable that that may be the cause of producing more damage than we have hitherto suspected.

PREVENTIVE MEASURES.

Seeing that Dermacentors attach by preference to the base of the mane, it would be, I should think, a comparatively easy parasite to treat for. The principal thing to avoid would be the



Tick Bite on Neck of Child

application of substances liable to injure the skin. In reading Steele's book on the diseases of sheep, I find the following dressings, which used to be applied years ago to sheep in Scotland. Shepherds have informed me that these dressings were applied for a double purpose: one, to destroy any parasites which happened to be on the skin, and the other purpose being to increase the shedding power of the wool against rain. The dressings must have been of a mild and non-irritant nature, as I am informed

that the skin of the animals was completely saturated with them. As these dressings contain much oil, they should be quite lasting, and be both repellant and fatal to ticks when applied.

Butter and lard, each, 18 pounds.
Resin, 12 pounds.
Gallipoli oil, 1 gallon.

Or the following may be used:

Train or seal oil, 4 gallons.
Tar, ½ gallon.
Oil of turpentine, 1 pound.
Mix and rub in well after shearing.

AN INTERESTING CASE, PROBABLY OF MILK FEVER COMPLICATIONS.

I was called upon recently to examine a valuable cow; she had calved the night before, and the next morning the calf was behind her, although she was left as usual before the owner retired to rest. On the next morning she was lying and rising in great agony and moaning very heavily. The local empiric was sent for, and he, with his usual quickness, diagnosed pneumonia. He applied mustard all over the body, and on his further examination, found a very sore foot also; he washed out same with Jeyes' fluid and hot water, and said she would now soon be well. She continued in the same condition until evening, getting no better, and apparently sicker and suffering great pain, moaning and restless. A neighbor of the owner called to see the valuable cow, as he heard she was not well, and on seeing her, expressed the opinion she was very ill, and that "the quack was all right for simple things, but it was better to have a qualified man's opinion, as she was a great cow." I was sent for, and on arriving at the byre found animal standing, and moaning very heavily. Temperature was about 102 degrees, pulse was thready, respirations labored; she had a serious discharge from the vulva, and as I have already said, she was found in this position when we arrived in the morning. I washed my arm with an antiseptic, examined her uterus, found, in my opinion, everything normal. In case of infection being present, I passed into uterus a pessary

of iodoform and boric acid. She still continued to moan and breathe heavily, then lay down, and after she lay for about fifteen minutes I attempted to raise her. She appeared to rise with difficulty, and staggered somewhat. I then thought of milk fever complications. I gave her the oxygen treatment, per udder, and treated her as a case of milk fever. I left, and said I would return in three or four hours afterwards. On my return I was informed she lay down, and apparently slept, and on several occasions she arose very quickly and continued her moaning, and when she lay she was particularly ill, and moaning. I then loosened her teats and bathed her udder with an antiseptic wash. I then directed her to get a drink, and with a smile they said: "We have been coaxing her all day to take a drink, and she refused." However, I said: "Try her once more," and to the great surprise of all, she took it, and shortly afterwards started to chew her cud, and when I left she was still ruminating. The byre was full of neighbors, among them the empiric himself, and I think his great name had got a hard blow, and on expression of his opinion to do this and that, the courtesy shown him was not the usual. I saw her next morning, and she was as usual, and has continued so ever since. The owner, who was a great supporter of this empiric, said it was a straight win for the professional man, and gave a severe knock to ignorance and quackery.—J. McBirney, M. R. C. V. S., Rathfriland, in the Veterinary News.

NOTE ON THE OCCURRENCE OF FILARIA PAPILLOSA.

The following note may be of interest to some of our readers, although the specimen was secured some time ago by the writer from the aqueous humor of a horse's eye. About nine days prior to its extraction it was observed by the owner of the animal to be about one-sixteenth of an inch in length. At the time of operation, however, it appeared to be fully developed, being in the neighborhood of 50 mm long, and was probably a male parasite.

The following are a few brief observations relative to what is known of *Filaria papillosa*, and its connection with "verminous ophthalmia." The members of the order, "Nematoda," to which this parasite belongs, are quite numerous, being found in all the organs of the domestic animals, with the exception of the bones and the nervous system.

Abildgaard gave to his parasite the name *Filaria equina*, while *Filaria palillosa* was the one given to it by Rudolphi. Its description, according to Neumann, is as follows:

> Body long, filiform, white, attenuated at both ends, and especially behind. Mouth small and provided with a chitinous infundibuliform ring, the border of which is divided into four rounded and salient papillae; outside this ring are four sub-median papillae, in the form of spinules. Male, 6 cm to 8 cm long; tail curved in a spiral manner, and having eight papillae on each side, of which there are four pre-anal, and four post-anal; two unequal spiculae in a transparent sheath. Female 9 cm to 15 cm long; tail, slightly spiral, and terminated in a papilla preceded by two others. Vulva situated near the anterior extremity. Ovoviparous.

It appears that the presence of a worm in the interior of the eye of a horse was reported for the first time, in 1622, by Spigel. In 1773, a century and a half later, Domingo Rayo, a Spanish veterinarian, mentions a similar occurrence in a mule and a horse. In 1762, there was exhibited in Philadelphia a horse that had, so it was reported, "a living serpent in its eye." A similar observation was made by Sick at Vienna in 1804. Since that date, the condition, "Intra-ocular helminthiasis," has been observed on several occasions, both in this country and in Europe; although the late Prof. William Williams, of Edinburgh, Scotland, has stated that it is unknown in Great Britain. It would appear, so far as we can ascertain, that these *filariae* are most common in Bengal, Upper India, Madras, Ceylon, etc., and up to the borders of Burmah. They seem to be more frequent in certain localities than in others, and are observed mostly during the cold season, and when rain has been abundant. Kennedy was the first to make mention of the condition in the eyes in horses in India, and more recently, details have been furnished by other observers, including Percival, who, in 1825, stated that "in low, humid situations in India, where fogs are prevalent, and where there is stagnant water, especially after an unusually wet season, 'worm in the eye' is a very common occurrence. It is also seen in other parts during the cold months, from the beginning of October to the latter end of February. The symptoms seem to be conjunctivitis, the cornea obscured by 'nebulous effusion,' the eyelids closed, and photophobia. On close inspection, a small white worm can be discerned floating in the aqueous humor, at one time rising to the superior, at another, sinking to the bottom part, of the chamber." (The symptoms observed in the writer's case were the presence of the threadlike nematode actively swimming about in the aqueous humor, and opalescence of the cornea, only.)

Paszotta has observed that the eye-filaria may die and become absorbed in five or six weeks.

Although ophthalmia due to *filariae* in the interior of the eye has been observed most frequently in equines and bovines, some exceptional instances have been recorded as occurring in the sheep, dog, chicken, and goose.

It is claimed by some authorities that the *Filaria papillosa* usually lives in the peritoneum of the horse; but Rudolphi has also found this parasite in the sub-peritoneal and inter-muscular connective tissue of the abdominal walls. Other observers have discovered it in the sub-arachnoideal space, in the substance of the diaphragm, as well as some other tissues of the body. In stagnant waters in India, both the parasites and their ova are said to be abundantly found, and that they find their way into the animals' bodies along with the drinking water, either in the fully developed state, or as ova.

As *Filaria papillosa* seems to have been discovered in such a variety of habitats, when found in the eye it may be looked upon as an "erratic" parasite; that is, found in the adult stage in an organ different from that which constitutes its usual haunt.

The course by which the *filariae* of the horse find their way to their final location seems not to be definitely known. It may be presumed, however, that the blood-stream would be a most likely vehicle, especially for the conveyance of the ova to distant parts, they being, necessarily, extremely minute in size; and development completed in the ultimate location—the anterior chamber of the eye.

While similar occurrences may have been observed in different parts of the country, the writer thinks they must have been somewhat rare, as, during a period of thirty years in the South, the case alluded to is the only one seen by him in that time. W. H. D.

GANGRENOUS DERMATITIS.

From the return it will be observed that a total of 68 donkeys treated were exhibiting a condition which I have termed Gangrenous Dermatitis.

This condition has proved very refractory to cure, and has caused considerable inconvenience to the units concerned. More especially has this been the case with the donkeys of the animal transport, L. of C., where at one time 30 per cent of their total strength were under treatment and incapacitated from duty.

The disease, as it almost invariably presents itself, is localized to the skin and underlying tissue in the region of the heel and coronary band, but from the original site, if not treated early and energetically, spreads rapidly in all directions and invades the deeply-lying structures, tendons, ligaments, and even bones.

Unfortunately in most cases, more especially in donkeys, where the difficulties of detecting the lesion in its initial stages are great, the disease may be in existence for a day or two, and there is marked lameness when the animals are brought in for treatment.

The local lesion is a necrotic gangrenous wound of variable size, met with usually in the region of the heel; there is a very persistent foul-smelling purulent discharge of a greyish color, in which may be found small particles of dead tissue.

The edges of the wound are rugged, not well defined, and of a necrotic character.

The gangrenous necrosis spreads with alarming rapidity, and within 24 hours of first being noticed the wound may have doubled its circumference and burrowed so deeply that certain important underlying structures have become involved, such as tendon and tendon-sheaths, with a corresponding increase of pain and a corresponding decrease in the prospects of an ultimate recovery.

In fact, when once the necrotic process has invaded the tendon-sheaths or other underlying structures, destruction is the only course indicated.

Treatment.—The necrosis and gangrene must be arrested and the adjacent and still healthy tissue encouraged to throw off the attached gangrenous slough.

For this purpose I have found the application of pure turpentine to the wound and the removal of all loose tissue to have a most marked effect.

The turpentine is not only a strong penetrating antiseptic, but has a decidedly stimulating action on the adjacent healthy tissue, causing a well-marked leucocytosis and, in favorable cases, within 48 hours, sloughing of the dead tissue, leaving a healthy granulating surface underneath.

As soon as the slough has separated and granulations well advanced, there is no danger of a further extension of the necrosis, and the healing process goes on uninterruptedly.

In conjunction with the above I use the following liniment soaked in cotton wool and bandaged to the part:

Ol. Tereb.....	applied twice daily.
Zinc Oxid.....	
Boric Acid a a.....oz. ii	
Tar or Disinfect. Fluid..oz. i	
Ol. Lini. ad.....oz. xxiv	

This application has the effect of encouraging healthy granulations and rapid recovery.

The mortality from this condition has been rather high in donkeys, firstly, from the usually advanced state of the necrosis before treatment is commenced, and, secondly, owing to the donkey propensity for licking and eating wounds great difficulty is experienced in keeping the parts bandaged and the wounds free from flies.

This treatment has given quite satisfactory results, and certainly is superior to other forms I have tried in the past.—Capt. W. W. Henderson, Veterinary Officer, Port Amelia, in Veterinary Journal.

ABSTRACTS.

THE CERUMINOUS GLANDS OF THE PIG AND CAT.

A. Mensa, having studied the ceruminous glands of the auditory passages in the pig and cat, communicated his results to the *Archivio Scientifico di Medicina Veterinaria* in 1914. The ceruminous glands are of two kinds, viz.: (1) the tubular, which are analagous to the sudoriparous glands of the common integument, but adapted to the production of different material, and (2) the clustered glands, analagous to the cutaneous sebaceous glands, and with the same histological constitution. The numerical relation of the two varieties of glands varies according to the species of animal.

The tubular glands are absent in some of the mammalia; but both varieties are encountered in the cat and the pig. In the cat they are in almost equal proportions, except as regards the size of elements. In the pig there is an evident numerical disproportion, the sebaceous glands being distinctly the more numerous.

For this reason, a uniformity of relations is observed in the cat which does not exist in the pig. The author finds that the glands in the cat are in corresponding series, the sebaceous glands

being superposed to the tubular ones; one group of tubular glands corresponds to every group of sebaceous glands, and their relations of contiguity do not vary throughout. In a few instances there are exceptions to this rule, from absence or a lesser number of the tubular glands.

The sebaceous glands are always very well developed in the cat. The disposition of these glands corresponds to that of the analagous cutaneous glands. The tubular glands are of great extent and very ample. Their excretory canals, according to Lunghetti, constantly open into the hair follicles. Mensa, however, believes that in the majority of instances they open on the cutaneous surface, and less frequently in the hair follicles.

The characters described as pertaining to the ceruminous glands in the cat are also of general application to the glands in the pig; but there are some exceptions. In summarizing these, Mensa says that the glands in the pig are very inferior to those of the cat in the number and in the extension of the glandular groups; nor are the glandular elements so well developed. The tubular glands in the pig are of less ample lumen and are less deeply situated than in the cat, in which animal they occupy the hypodermic connective zone bordering upon the perichondrium. In the pig, the presence of an adipose zone behind the tubular glands is noticed. In the pig, even more frequently than in the cat, the tubular glands open freely on the cutaneous surface.

The very debateable question of the genesis of the cerumen is connected with the existence of these two varieties of glands in the auditory passage. Mensa thinks that the sebaceous glands discharge the protective function of the passage and of the tympanic membrane, while the other glands only produce the yellow-grey pigment which imparts the color to the cerumen, and also a liquid secretion which keeps the area of the external passage humid.—*(Revista de Higiene y Sanidad Pecuarias.)—Veterinary Record.*

HORSE DEMOBILIZATION.

It is well known that the Germans for years before the war were buying thousands of horses a year from England and Ireland. At one time a representative of the German Government was specially engaged to visit English race meetings, where he was a constant bidder for, and frequent purchaser of, winners of selling races. He did not stop at actual winners, but was pre-

pared to buy other horses. The one stipulation in buying for the German Government was that the horses should be sound in wind and limb. In addition to this special buying of the German Government there were numerous other agents picking up likely animals for the Fatherland.

But with all this preparation we were able to beat the German even so far as the employment of horses was concerned. The work of horses in warfare does not start and end with the cavalry forces. The real value of the horse lies in transport and artillery work. Motor power has not supplanted horse power. The full value of motor power depends upon the provision of good roads. But with modern guns, in modern warfare, you cannot depend upon good roads, and here it was that the horses came in.

The value of the services of horse power in the war is acknowledged by Sir Douglas Haig as follows: "If in March, 1918, the equine force of Germany had been on the same scale, and as efficient, as the British equine force, the Germans would unquestionably have succeeded in breaking through between the French and the British armies, and inflicted a defeat so great that recovery might have been impossible."

Now those horses that have done such good work are to be sold. Fifty thousand have been handed over to the Belgian Government and no doubt the devastated districts of France will take at least a similar number. But between now and the end of January 25,000 are to be offered by auction in various parts of England.—*People.*

SERUM OF LECLAINCHE AND VALLÉE.

Leclainche and Vallée, in *La Presse Medicale* of April 2, 1917, published a new communication upon the methods of using their polyvalent serum. Their account is based upon the very numerous applications of the serum which have been made in the course of the war; and they state that it may be employed by local applications upon infected surfaces and by subcutaneous injections when post-traumatic infections are present. The two methods of application are dealt with separately.

Local applications. The use of the serum excludes that of antiseptics, which, in addition to the coagulating and neutralizing actions which some of them exercise, almost always have the

disadvantage of depressing and paralyzing the organic cells. This latter action is essentially antagonistic to that which the serum is desired to effect.

The serum must be brought into contact with the anatomical elements; and therefore it is necessary to free the wound from the various elements which cover it by a minute washing with boiled water.

The testimonies of medical men who have employed the serum on the prescribed lines are completely favorable. P. and L. Bazy write, "In wounds which cannot be completely united by sutures, we apply the polyvalent serum freely, obtaining excellent results. The healing processes are not painful, the flesh is well preserved, the lips of the wound remain admirably flexible, and very rapid granulation commences at its base." On the other hand, Prof. Quénu, summarizing the results of various surgeons, decides that "the polyvalent serum causes a considerable diminution of suppuration." At the same time a greater activity in the epidermization of the edges of the wound, a lessened sensitiveness, and an improvement of the general condition with descent of the temperature, are observed. These conclusions are applicable both to war wounds and those which result from the opening of phlegmons, anthrax lesions, etc.

It is recognized, however, that "discrimination is necessary in the treatment of septic wounds, and that it is sometimes desirable not to perpetuate the same formula of treatment." It is known today, for instance, that the *Bacillus pyocyaneus*, which is often resistent to the polyvalent serum, yields marvellously to a weak solution of nitrate of silver.

Cazin and Mdlle. Krongold say, "When the beneficial action of the polyvalent serum, locally applied, does not manifest itself rapidly and evidently, it is useless to continue this treatment." In these circumstances the microbial flora of the wound include at least one microbe that is not comprised among the numerous forms used for obtaining the serum. It follows from this that the polyvalence of the serum is always being improved by the introduction of microbial types isolated from war wounds.

Subcutaneous injection. In the hands of Prof. Lagneu, Cazin, Vautrin, Gosset, Berger and Bergeron, and Prof. Delbet and Prof. Quénu, who have studied its employment, the polyvalent serum has shown itself a very valuable agent against infections and toxic complications of large wounds. Cazin concludes from his experience that in particularly serious cases in which he has had

recourse to the serum the results have been very favorable, for he has observed a progressive and sufficiently rapid descent of the temperature with an improvement in the general condition. And Quénu adds, "It is impossible to deny that sero-therapy has contributed much to the treatment of gravely affected septicæmic patients." It appears to be as an anti-streptococcic agent that the serum acts in circumstances.

The hypodermic use of the serum (either alone or in conjunction with local treatment by means of the serum or some other agent) is also very valuable in the prevention of operative complications following operations in infected ground.

Prof. Delbet uses the serum in doses of 30 cc daily in polymicrobial infections. He says that in certain cases high doses appear to him to have a notable action, and his impression is that they have saved the lives of some patients.

Hypodermic injections of this serum entail no danger of seric or anaphylactic accidents. The conclusions of the Academy of Medicine, etc., are completely assuring on this point.

Leclainche and Vallée manufacture their serum at the laboratories of the Alfort Veterinary School, and hitherto it has been used solely for the necessities of the war. It is well, however, to follow its present evolution; for in time of peace it will be of great utility, and will then be available to all the world.—*Revista de Higiene y Sanidad Pecuarias.*

CORRECTION.

In the Extra Edition, January 15, 1919, under the list of Presidents, page 485, President V. A. Moore's address was inadverently given as "New York, N. Y.," instead of New York, only, as referring to the State.

Also, on page 420, reference to the address of welcome should have been the November Journal; and to the response, the October Journal, instead of the reverse, as printed in the Extra Edition.

ARMY VETERINARY SERVICE.

Dr. T. B. Harries writes from Wessex Divisional Veterinary Hospital, Romsey, Hants, England, that he is now stationed there with a divisional unit. This is his first experience with a hospital, as he has been with the artillery in the British Salonica force operating in Macedonia until the armistice of Bulgaria was signed. Captain Harries hopes to be sent to France, but he thinks his chance of serving on the western front are very slight. Captain Harries was with the party of veterinarians that went to Europe to attend the International Veterinary Congress in London in 1914. At the outbreak of war he stayed in England and joined the British veterinary force and has been in active service ever since. Captain Harries' home is in Calgary, Canada.

Dr. R. E. Ouderkirk received an honorable discharge as second lieutenant in the Veterinary Corps in December and has returned to his practice at Reynolds, Ill.

Lieutenant Colonel D. S. White, V. C., has been promoted to the rank of full colonel.

Second Lieutenant Hursh R. Yost was promoted to a first lieutenancy in October. He is a transport veterinarian, with headquarters at Newport News, Va., and has just returned after having taken a load of horses and mules to France. The necessity for good animals in France may cause a continuance of such transportation.

Dr. George E. Golden, second lieutenant, Company 47, Battalion 12, Camp Greenleaf, Chickamauga Park, Georgia, writes the Journal in a very optimistic strain with reference to his life in military training camp, and remarks he never felt better in his life.

The Doctor gives us an idea as follows, what a day's work consists of, which should keep any man in perfect condition, morally, mentally and physically, and submits a photograph showing a few hours of recreation:

Saturday	A.M.	Bugle blows (get up).
5:30 A.M.		Roll call.
6:10 A.M.		Calisthenics.
6:15 to	6:45 A.M.	Police duty (cleaning streets, making beds, etc.).
6:30 to	7:30 A.M.	Sanitary company drill.
8:00 to	9:00 A.M.	Lectures (army regulations and veterinary subjects).
9:00 to	11:00 A.M.	Battalion drill.
11:00 to	12:00 M.	Dinner.
12:00 to	12:45 P.M.	Police duty (clean company street).
12:45 to	1:00 P.M.	Cavalry drill.
1:00 to	3:30 P.M.	Detachment drill.
4:00 to	5:20 P.M.	Supper.
5:30 to	6:10 P.M.	Study period.
6:30 to	8:30 P.M.	Our own time until bugle blows, then lights out.
8:30 to	9:30 P.M.	Examination.

The above picture was taken November 3, 1918, on Umbrella Rock, point of Lookout Mountain, Chattanooga, Tenn.
Reading from left to right—Second Lieutenants McCoy, Miller, Golden, Pottle, Matter and Brown.

A subsequent note from the Doctor states that he has been honorably discharged from military service and will resume his duties immediately with the Bureau of Animal Industry, Des Moines, Iowa.

The very efficient service performed by the British Army Veterinary Corps during the war has been recognized by the king of England, who, by royal warrant, issued November 27, expressed his great satisfaction with the work of the corps during the war and commanded that it shall hereafter enjoy the distinction of "Royal" and shall be elevated to the status of a "Royal Corps." Consequently, it will be known henceforth as the Royal Army Veterinary Corps.

The war office memorandum to Major General L. J. Blenkinsop, director general of the British Army Veterinary Services, announcing the action of the king, recited that "the corps by its initiative and scientific methods has placed military veterinary organization on a higher plane. The high standard which it has maintained at home and throughout all theaters has resulted in a reduction of animal wastage, an increased mobility of mounted units and a mitigation of animal suffering unapproached in any previous military operations."

American veterinarians, and especially those in our own army, will rejoice in this tribute to their English colleagues, who have so richly deserved it. C. J. M.

Lieutenant W. W. Yard of Denver, Col., who, after finishing his training at Camp Greenleaf, was transferred to Camp Lee, was later sent "overseas" to the A. E. F.

Dr. Ray W. Gannett of Brooklyn had an interesting article in the Brooklyn Standard Union on Army Veterinary Service, and incidentally strongly condemned newspapers and journals for carrying the advertisements of correspondence veterinary schools.

Major Robert C. Musser, Veterinary Corps, with the 8th Division, while on his way across the continent from Camp Fremont, contracted pneumonia. Fortunately, he made a good recovery and expects to be with the division soon.

ASSOCIATION NEWS.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

Treasurer Jacob has purchased for the American Veterinary Medical Association $3,000.00 worth of Liberty Bonds as directed by the Executive Board. He will also purchase the corresponding amount of Canadian government bonds.

Treasurer Jacob has forwarded through Colonel D. S. White, Chief of the American Army Veterinary Service in France, a sum of $2,500 to be paid to Prof. Vallée. This amount is to be presented to Professor Vallee by Colonel White and also by the ranking Canadian veterinary officer on behalf of the American Veterinary Medical Association and is to be expended for the relief of needy veterinarians of the allied countries.

MAYOR BEHRMAN PROMISES COOPERATION.

New Orleans, La., December 16, 1918.

Dr. W. H. Dalrymple,
Roumain Building,
Baton Rouge, La.

My dear Doctor:

I have your communication of the 14th inst. advising that the American Veterinary Medical Association has favored New Orleans for its next meeting place, and that it will convene here October 13 of next year.

I shall gladly coöperate with you in every way in the direction of making the convention a very successful one.

With best wishes, I am,

Yours very truly,
MARTIN BEHRMAN,
Mayor.

SECRETARY'S OFFICE.

One of the problems that has confronted the Secretary, as well as the Editor of the Journal, has been the difficulty in

keeping track of the members that were in the army service during the past two years. Now that many of the veterinarians are being discharged from the service, it is important that they advise the Editor of the Journal and the Secretary of their new address in order that a record may be kept. It will be of great assistance if this is done promptly.

Another very important item is that the Secretary desires to secure the name and rank of every member of the Association that has been in service, in order that this may be made a permanent record on the Secretary's books. In many instances mail addressed to members has been returned marked "in the army" but without any other information. It is earnestly hoped that every veterinarian in the service will send in his service record promptly.

Captains Longley and McGuire and Major Stokes have secured 253 applications for membership in the A. V. M. A. from the veterinarians in training at Camp Greenleaf, Ga. These officers certainly deserve the "distinguished service medal" of the A. V. M. A. for their work in securing new members last year and this. We feel sure that all members of the Association appreciate their efforts. Captain Longley has recently been discharged and has returned to his home in California.

In December more than fifteen hundred letters were sent out to members who had not made remittance for their 1918 dues. A large number here responded to the appeal, and it is earnestly hoped that all will do so.

Two instances have come to the attention of the Secretary where families of deceased A. V. M. A. members seemed to be in need of assistance. The cases were referred to the Relief Committee and given prompt attention.

The following letter, suggested by President Moore, has been sent to all Resident Secretaries. It is so important that we feel that all members will be interested in it:

"To the Resident State Secretaries:

The by-laws of the new constitution of the Association defines the duties of the Resident Secretaries in Section 2 of Article 18 as follows: "Each Resident Secretary shall coöperate with the

Committee on Intelligence and Education and shall aid the President, Secretary and Editor of the Journal in such manner as they shall direct." It is clear, therefore, that the Resident Secretaries are important agents for the good of the Association.

We are in a period of reconstruction where every organization is being examined to ascertain what it is doing to meet after-war conditions. The purpose of the A. V. M. A. is to build up an efficient veterinary service in America. It stands for educational, civic and professional efficiency. Its members are the advisors and teachers of animal owners relative to the protection of their live stock against disease. Its annual meetings are veritable forums of great value to all who attend.

The rapid advance in knowledge of animal diseases and methods for their treatment and control present many new and often perplexing problems that the veterinarians must solve. Added to this, owners of live stock are asking for better service. The Resident Secretaries can do much if they will keep in touch with the ever-growing demands on the profession and bring forward the best there is to improve the veterinary work.

As Resident Secretary, you are to the Association in your community what a practitioner is to his clients—near at hand and ready to give advice promptly. You are the representative of this great Association in your state or province. What can you do to help and what can the officers do to help you? Let us all work together.

It is the desire of President Moore to have the present year the most successful in the history of the Association, in the promulgation of professional ideals and in attracting veterinarians who are not members to join us. In securing new members, however, it is the quality of the men and not the number that is desired. It is hoped that everyone will strive to maintain its standards in all phases of veterinary work. The Association is judged largely by the professional conduct and standing of its individual members. Will you not make a special effort to have its ideals accepted and followed by every veterinarian in your district? The war is over and after-war conditions must be met. Let us hope that veterinarians will not be found wanting in this new, patriotic service.

The Resident Secretaries should be of every possible assistance to the Editor of the Journal by furnishing valuable articles, case reports, practical veterinary suggestions and news items regarding members. This is one of their obligations to the profes-

sion. The officers want to help you and reciprocally they will appreciate most heartily any suggestions for the benefit of the Association that you may be willing to offer. We trust that in good work, this may be the banner year in our history.

N. S. M.

OTHER ASSOCIATIONS.

TENNESSEE VETERINARY MEDICAL ASSOCIATION.

The Tennessee Veterinary Medical Association held its tenth annual meeting at Memphis November 19-20, 1918. It was one of the best meetings the association has ever held. All members were very grateful to the War Department for sending such an able representative, Major R. M. Staley, who explained the Army Veterinary Corps and gave history of the same. There were some very interesting papers submitted and discussed by members, and a highly appreciated paper by Prof. C. A. Keffer of the Division of Extension, University of Tennessee, showing cooperative relationship of the veterinary and county agents.

The following officers were elected for 1919:

President—W. G. Shaw, Knoxville.

First Vice President—J. R. Hillman, Hickman.

Second Vice President—Wm. Bell, Nashville.

Secretary—F. R. Youree, Lebanon.

Treasurer—A. C. Topmiller, Murfreesboro.

A banquet was given the association by the Memphis doctors during the evening of November 19 and a sight-seeing trip to Park Field in the afternoon of November 20, assisted by the Commercial Club members of Memphis, to view the aviators doing their daring stunts. Every minute of time was utilized during the two days' session, all parting well pleased and looking forward to the next meeting, which is to be held in Nashville.

F. R. Youree, Secretary.

CENTRAL NEW YORK VETERINARY MEDICAL ASSOCIATION.

The ninth semiannual meeting of the Central New York Veterinary Medical Association was held in Syracuse November 27, 1918, at the infirmary of Dr. H. A. Turner.

It was opened with a clinic at which the following cases were operated on:

No. 1, black mule, Dr. Dooling's case; quitor; surgeons, Drs. Danforth and Dooling.

No. 2, black horse, Dr. Dooling's case; paralysis of penis; surgeons, Drs. Clark and Dooling.

No. 3, black colt, Dr. W. M. Pendergast's case; fistula of the hip; surgeons, Drs. Bosshart and W. M. Pendergast.

No. 4, black mare, Dr. Sullivan's case; cystic ovaries, spayed; surgeons, Drs. Ide and Sullivan.

No. 5, chestnut mare, Dr. Sullivan's case; cystic ovaries, spayed; surgeons, Drs. Ide and Sullivan.

No. 6, bay gelding, S. P. C. A. case; roarer; surgeons, Drs. Danforth and Turner.

No. 7, bay gelding, Dr. Dooling's case; tumor of the ankle; surgeons, Drs. Danforth, Turner and Webber.

No. 8, female hound, Dr. Turner's case; spayed, in side; surgeon, Dr. W. L. Clark.

This closed one of the most interesting clinics ever held in the history of the society, and on account of the lateness of the hour it was decided not to go to the hotel for our business meeting, and we adjurned to Dr. Turner's office.

The business meeting was called to order by the president, Dr. J. M. Currie, at 4:10 p. m.

Roll call showed the following members present:

Doctors—W. G. Hollingsworth, W. B. Switzer, J. A. Pendergast, A. J. Tuxill, W. L. Clark, W. M. Pendergast, J. V. Townsand, M. W. Sullivan, F. C. Overton, H. A. Turner, F E. York, J. M. Currie, E. E. Dooling, C. R. Baldwin, Almond H. Ide, J. K. Bosshart, A. L. Danforth, O. P. Jones.

Visitors—Dr. Leroy Webber, Dr. Carl Webber, Dr. J. W. Turner.

Minutes of the last meeting were read by the Secretary and upon motion duly made, seconded and carried they were approved and ordered placed on file.

Moved, seconded and carried that the papers for this meeting be carried over to our next annual meeting.

Dr. Hollingsworth made some very interesting remarks on "What is to happen during the great reconstruction period that is to follow the declaration of a world peace, and suggested that some of the members invite a layman from amongst their clients to attend the annual meeting in June, 1919, and that they be

asked to come prepared to give their views on the subject mentioned by Dr. Hollingsworth, and agricultural problems. The above suggestion was adopted.

Dr. Danforth suggested that the annual meeting in June—it being our tenth anniversary—be carried into the evening, and that we have a dinner at about five or six o'clock.

Moved by Dr. Clark and seconded by Dr. W. M. Pendergast that at the annual meeting in June, 1919, we have our clinic during the day following which we have a dinner and that we entertain our wives or lady friends at the dinner, and that following the dinner we hold our business and literary program. Carried.

Moved, seconded and carried that the President at his convenience appoint a committee to act with the Secretary to arrange for such a day and evening meeting.

Under the head of new business Dr. Hollingsworth presented the matter of internal revenue law and gave us his experience with the same in regard to the ten per cent tax on medicines put out under label, and informed us that there was a fine of not more than $1,000 for non-compliance with said law.

Moved, seconded and carried that the Secretary take counsel and ascertain the exact law and send a copy of same to each member of this society.

There being no further business, an adjournment was taken at 5:50 p. m. W. B. SWITZER, Secretary.

WESTERN NEW YORK VETERINARY MEDICAL ASSOCIATION.

The fifth semiannual meeting of the Western New York Veterinary Medical Association was held December 12, 1918, at the hospital of the Erie County Society for the Prevention of Cruelty to Animals, 121 West Tupper Street, Buffalo, N. Y.

After a short clinic in the early part of the afternoon the meeting was called to order by the President, Dr. J. L. Wilder of Akron, N. Y., and the regular order of business disposed of, which included the election of three new members to the association, which now nearly reaches the fifty mark. After enjoying a bountiful repast at the Teck Cafe, the association reassembled at eight o'clock at the S. P. C. A. hall and listened to addresses and papers until past midnight.

Dr. W. L. Williams of Cornell addressed the association on "Diseases of Breeding Animals," illustrated with specimens, which was highly interesting and instructive.

Dr. W. E. Frink of Batavia, N. Y., gave a very practical paper on "Sterility in Cattle and How I Treat It."

"Early History of Veterinary Education" was the subject of a paper read by Dr. H. T. Gaetz of Buffalo, N. Y. Dr. Gaetz certainly did justice to the subject and did not fail to mention any one that had ever been recognized as an educator in veterinary science from the earliest ages to the present time.

The "Question Box" drew no small amount of amusement and discussion and proved itself a good asset to the meeting.

The next meeting will be held the third week in June, 1919.

F. F. FEHR, Secretary.

DOMINION VETERINARY INSPECTORS ASSOCIATION OF CANADA.

On December 16 the Dominion Veterinary Inspectors Association enjoyed one of its best meetings yet held.

Through the very kind auspices of the Veterinary Director-General, the inspectors in charge of official establishments throughout Ontario were called to Toronto. Arrangements were also made for a representative from the Bureau of Animal Industry and in this connection we were favored by the presence of Dr. B. P. Wende, inspector in charge of Buffalo, N. Y.; Dr. Torrance, Veterinary Director-General; Dr. Barnes, chief inspector meat and canned food acts, and Dr. Lowrey, traveling inspector for eastern Canada, all of Ottawa, were present and assisted materially in making the meeting the great success which it enjoyed.

The morning was devoted to an inspection of the excellent abattoir and packing house of the Harris Abattoir Company, West Toronto, and as much of the plant as the time would permit was carefully gone over. After lunch, a meeting was called to order at 2:30 p. m. in the assembly hall of the Ontario Veterinary College, with Dr. Irvine, inspector in charge Toronto district, in the chair.

For this meeting no definite program had been prepared, but each inspector had been notified to come prepared to present for discussion some question of greatest importance to him in his

plant. This arrangement met with wonderful success, and the opportunity of such discussion with the chief and other members of the staff was appreciated to the fullest.

In the evening a meeting was held in the same room, with Dr. Cook, President of the Dominion Veterinary Inspectors Association, in the chair. Dr. Torrance, honorary president of the association, gave the address of the evening, but before entering into same he made an announcement to the staff which is deserving of more than passing notice. In connection with the Toronto district office he has donated an excellent scientific library, for which suitable accommodation, furniture, etc., is being arranged, and it is hoped to have everything in shape for an official opening on the next regular monthly meeting of the Association. Furthermore, he announced completion of arrangements whereby pathological and bacteriological laboratory diagnosis is in future to be handled in Toronto by Dr. Allen, professor of these subjects at the Ontario Veterinary College, instead of forwarding the material to the biological laboratory at Ottawa, as in the past.

The need and advantages to be derived from such arrangements have been felt for some time and the common belief is that the service and usefulness realized will be fully in accord with the anticipated benefits to be derived. Needless to say, the staff fully appreciates and is very thankful for such assistance.

Dr. Torrance's address was given on the history of veterinary education in Canada. He carefully reviewed the work done from the inception of courses of study at the Ontario Veterinary College, the Montreal Veterinary College, later Department of Comparative Medicine of McGill University, and the course given in French by the Department of Comparative Medicine of Lavall University. This address was highly instructive and very entertaining and was enjoyed very much indeed. Dr. Barnes, honorary vice president; Dr. McGilvray, honorary member, Dr. Lowrey and Dr. Wende, guest of the evening, each spoke briefly but entertainingly.

There was an excellent attendance of members and a goodly number of guests from the faculty of the college, together with several veterinarians of the local staff of the contagious disease division.

At a meeting of the executive committee of the Dominion Veterinary Meat Inspection Association it was unanimously resolved:

That whereas our associated existence is avowedly based upon an effort to attain a better and more highly educated service, we have been met by our chief or honorary president much more than wholeheartedly. Speakers from our departmental heads have been freely given, everything, in fact, to raise our professional status, for all of which we are most deeply indebted.

We desire to express our especial gratefulness for the splendid educational opportunity he has presented to us in the form of a valuable library contribution, a library filled with the latest and best works known to the profession.

We are united in recording our heartiest approval of the laboratory arrangement he has proposed and worked out for our benefit, and from which we expect to derive so much. We sincerely hope that it may be the nucleus of a movement that will be viewed with an ever-growing pride as it proceeds. That we respectfully desire in the deepest sense of appreciation to express our associated thanks to our honorary president and official chief, Dr. Torrance, for all the kindly interest he has shown in our behalf. WM. TENNANT, Secretary.

OHIO STATE VETERINARY MEDICAL ASSOCIATION.

The thirty-sixth annual meeting of the Ohio State Veterinary Medical Association was held at the New Southern Hotel, Columbus, Ohio, January 9 and 10.

The unusually large attendance, and the great interest manfested, and particularly the large number of applications received for membership, was conclusive evidence of the fact that the association is a real, live organization.

A hearty welcome was delivered to the association by Mayor Karb. Among the various points of interest touched upon by the mayor, he emphasized particularly the necessity and importance of efficient veterinary municipal inspection of dairy and meat food products. Dr. Harry T. Moss, Dayton, in his pleasing and appropriate manner of expressing himself, gave a hearty response to the address of welcome.

In the presidential address, Dr. A. D. Fitzgerald gave in detail the history of the association, and in a few well-chosen remarks outlined the future possibilities of the profession, and expressed that he believed it good judgment in stating that agricultural pursuits are really dependent upon the veterinary pro-

fession instead of the dependency of the profession on agricultural interests.

In the report of the Secretary for the work of the fiscal year it was shown that the finances of the association were in a flourishing condition. The report also urged the advisability of the publication of papers of merit read before the body. Action taken by the association on this matter was to the effect that such papers be published in the current veterinary journals. It also emphasized the importance of, and urged that all members of the organization that do not now hold a membership in the American Veterinary Medical Association, make application for membership in the parent organization.

Dr. S. S. Sisson, professor of anatomy, veterinary department, Ohio State University, in his usual precise manner, gave the report of the Committee on Progress and Education. Its completeness was commendable, indeed.

Among the highly commendable papers were the following:

"Some New Surgical Methods, Illustrated," by Dr. N. S. Mayo, Chicago, Ill., Secretary of the American Veterinary Medical Association.

"Hemorrhagic Septicemia in Swine," by Dr. Edwin A. Cahill, Indianapolis, Ind.

"The Pathology of the Reproductive Organs in Sterility," by Dr. E. T. Hallman, department of animal pathology, East Lansing, Mich. Dr. Hallman's address was very concise and interesting, explaining in detail the fundamentals in the cause of sterility.

In the paper read by Dr. J. E. Gibson, Bureau of Animal Industry, on "Tuberculosis Eradication," he explained the aims and methods of the bureau, with respect to the tuberculin test and the placing of herds on the accredited list. It was well taken.

The election for officers for the ensuing year was keenly contested and the results were as follows:

President—Dr. W. B. Washburn, Tiffin.

Vice President—Dr. O. V. Brumley, Ohio State University, Columbus.

Secretary—Dr. R. I. Bernath, Wauseon (reëlected).

Treasurer—Dr. D. C. Hyde, Assistant State Veterinarian, Columbus.

Executive Committee—Dr. D. M. Swinehart, Columbus; Dr. A. J. Kline, Wauseon; Dr. J. F. Planz, Akron.

R. I. BERNATH, Secretary.

N. A. B. A. I. V.

The following resolution was unanimously adopted by the United States Live Stock Sanitary Association at Chicago, Ill., December 4, 1918:

Whereas, the success of a profitable and progressive live stock industry depends, to a large degree, on an adequate control of communicable diseases to which our domestic animals are susceptible, and

Whereas, the important duty of safeguarding the health of our immense live stock industry depends largely upon the efficiency and devotion to duty of the veterinarians employed by the United States Bureau of Animal Industry, whose services in the past have been of untold benefit in the conservation of our live stock resources, and

Whereas, it is generally recognized that many of the most capable members of this organization have severed their connection with the department, to the detriment of public interest and of the nation's service, because of the inadequate salaries paid by the department, and

Whereas, the present high standard of veterinarian's requirements demanding high school entrance examination and four years of special college training to qualify applicants for the B. A. I. service, and the ever increase in the high cost of living, have made the always parsimonious compensation of veterinary inspector in the B. A. I. service inadequate and unfair to those public servants, and

Whereas, it is recognized that even the nation can not expect the best of service out of its employees unless they are fairly compensated,

Therefore be it resolved, that a committee of this association be appointed to present the facts set forth in these preambles to the Secretary of Agriculture and, if necessary, to members of the Congress, urging them to give the veterinarians of the B. A. I. service such increases in their salaries as their respective services justify.

The following were appointed members of the committee created by the foregoing resolution:

Matt S. Cohen, Chairman, Kentucky Live Stock Sanitary Board, Frankfort, Ky.

E. S. Bayard, Editor of the National Farmer and Stockman, Pittsburgh, Pa.

H. H. Halladay, President of the Michigan Live Stock Sanitary Board, Lansing, Mich.

A. J. Glover, Associate Editor of Hoard's Dairyman, Fort Atkinson, Wis.

Cassius Way, Chief Veterinarian of Borden Condensed Milk Company, New York, N. Y.

Tait Butler, Editor of Progressive Farmer, Memphis, Tenn.

J. Thompson Brown, Chairman, Virginia Live Stock Sanitary Board, Richmond, Va.

ORGANIZATION OF THE BUREAU OF ANIMAL INDUSTRY EMPLOYEES IN LOUISIANA.

At the representative meeting held in Baton Rouge, La., on January 11, 1919, of the forty-three veterinarians now stationed in Louisiana, in connection with the work done by the United States Bureau of Animal Industry in reference to meat inspection, tick eradication, equine influenza, tuberculosis eradication and hog cholera control, the Louisiana division of the Bureau of Animal Industry Veterinarians was organized and the following officers elected:

President—Dr. E. I. Smith, Baton Rouge, La.

Vice President—Dr. R. W. Tuck, New Orleans, La.

Secretary and Treasurer—Dr. R. V. Rafnel, Baton Rouge, La.

The objects of this association are to advance the professional and material interests of the veterinarians of the United States Bureau of Animal Industry; to affiliate with the various medical and live stock sanitary associations in securing legislation for the material advancement of the veterinary profession and promotion of the live stock industry; to coöperate with the officials of the United States Department of Agriculture in promoting the efficiency of the bureau service and to uphold the civil service rules and regulations, and to encourage all bureau veterinarians to become members of the American Veterinary Medical Association.

Dr. W. H. Dalrymple, Dr. E. Pegram Flower, Dr. G. E. Nesom, Dr. Oscar Dowling and Prof. W. R. Dodson were elected honorary members.

SOUTHEASTERN STATES VETERINARY MEDICAL ASSOCIATION.

An excellent program has been arranged by the Secretary, Dr. G. A. Roberts, for presentation at the Birmingham, Ala., meeting of the Southeastern States Veterinary Medical Association, February 20-22, inclusive.

Among the subjects on the tentative program received may be mentioned the following:

Infections and Immunity.

Influenza and Associated Complications in the Horse and Mule.

Hemorrhagic Septicemia in Cattle.

Swine Plague and Mixed Infections of Swine.

Hog Cholera Control.

Anthrax and Blackleg.

Forage Poisoning.

Veterinary Service in the Army.

Abortion Disease.

Reconstruction Problems Confronting the Veterinarian.

State Laws Regulating Interstate Shipments.

Besides the presentation of papers, there are numerous important diseased conditions down for discussion.

In addition to the local veterinarians, a number of visitors are expected to read papers and lead in the discussions. Among the latter we note the following prominent members of the profession, and of the A. V. M. A.: Drs. A. T. Kinsley, E. A. Cahill, A. Eichhorn, Robt. Graham, L. A. Klein, I. C. Brenner, N. S. Mayo, H. Jensen, E. T. Hallman, D. M. Campbell, R. C. Moore, C. E. Salsbery, etc.

It is to be hoped that the Journal may be favored with some of the manuscripts for publication for the benefit of our readers.

NATIONAL ASSOCIATION OF BUREAU OF ANIMAL INDUSTRY VETERINARIANS.

PROTECTING A TEN-BILLION-DOLLAR INDUSTRY.

[This is the first of a series of articles on the protection of the live stock industry of the United States. Those that follow will deal with the more important diseases and what is being done toward their eradication.]

At first thought it may seem foolish to ask a man what he would do were he suddenly to come into possession of 75,000,000 hogs, 50,000,000 sheep, 69,000,000 cattle and 26,000,000 horses

and mules, but perhaps it isn't. Uncle Sam, who is the most extensive up-to-date farmer in the world, owns that much live stock, and for good measure there is a large flock of poultry scratching round the place. Every man who is a stockholder in this concern may do well to try to put himself in fancy in the place of this wealthiest of stockmen who in this particular business alone is ten times a billionaire.

Well, what would you do? Count 'em? No, that doesn't look quite like the first job. The chances are that you would first make sure that the herds and flocks were reasonably safe from contagious diseases. In other words, you would want some insurance—not insurance in the ordinary sense, but real protection that would actually prevent loss. The greater the live stock population the more necessary is a permanent plan of defense and capable men to carry it out. It is one of the first essentials of good business.

When the live stock industry of America developed to such an extent that outbreaks of disease became a serious menace to the welfare of the country, steps were taken to reduce the danger. It was an outbreak of pleuro-pneumonia in cattle that was the direct cause of the establishment of the Bureau of Animal Industry. That Bureau now has many more duties, but preventing diseases from entering the country, checking the spread of those already here and protecting the public against products of diseased animals is a large part of the work and requires the services of 1,600 trained veterinarians. The class of work that these men perform may be judged by the requirements they must fulfill. At present all men entering a veterinary college must have had at least two years of high school training. Those entering next year must have three years, and thereafter no man may enter one of these schools if he has not had a full high school course of four years. The course at a veterinary college, as recognized by the American Veterinary Medical Association, the War Department, the United States Civil Service and the United States Bureau of Animal Industry, must extend through four years, nine months to the year, which puts graduates on a par with graduates of universities. Many of the men who occupy the more responsible positions were graduates of colleges and universities before taking up their special line of work.

Since 1884, when act of Congress established the Bureau of Animal Industry and Dr. D. E. Salmon was appointed chief, the American live stock industry has been protected from plagues of

all sorts from without the borders of the country, and those already here are gradually being conquered. The most destructive diseases, such as foot-and-mouth and rinderpest, which exact an enormous toll every year in some foreign countries, have been prevented by this country's system of policing from ever gaining more than a temporary hold on our farms. Rinderpest has never gained entrance. No thoughtful man can doubt that the establishment of this Bureau in the nick of time has prevented the cost of food production from being much higher than at present.

If hog cholera could be eliminated—and there is every reason to believe that it can be done—how much more efficient would be the farms of the great Corn Belt and those of other sections that are now larding the incomes of their owners.

A report of the United States Live Stock Sanitary Association estimates the average losses from cholera at $50,000,000 a year for the last forty years, which means that losses have been much greater in later years on account of the large increase in the number of swine. That annual loss represents 4 per cent interest on an investment of $1,250,000,000. In forty years the loss has amounted to $2,000,000,000, nearly twice as much as the theoretical investment.

In 1914 the swine industry paid a toll of $75,000,000 to this devastator of herds. But there is encouragement. The use of anti-hog-cholera serum, a preventive developed by the Bureau of Animal Industry, is increasing rapidly. The loss during the year ending March 31, 1918, is estimated to be $32,000,000, a reduction of 60 per cent in less than five years. In Iowa, the hog hub of the world, nearly 3,000,000 hogs died of cholera in 1913. In 1917 the loss was a little less than 189,000. In that State alone twenty Federal veterinarians are at work continually investigating outbreaks of cholera, establishing quarantine and applying sanitary measures for the control of the disease, encouraging the use of serum, and assisting in the reduction of cholera losses.

Some spigot economists look upon the expenditure of $500,000 annually to fight hog cholera as an extravagance, but when we consider that the smallest annual losses recorded was sixty times this amount it begins to look as if State and Federal authorities should not hesitate to ask for more funds and to pay large enough salaries to hold the experienced men.

The spectacular defeat of the cattle tick in the Southern States is a wonderful chapter in the history of the fight against live stock pests and plagues. The first appropriation for this work

came in 1906 and now, twelve years later, nearly seventy per cent of the wide territory originally infected is free and ready for the development of a great live stock industry.

A Bureau of Animal Industry official made the all-important discovery that Texas fever is caused by an organism transmitted by the cattle tick. Another Bureau officer worked out the life history of this insect, enabling others of his profession to develop practical methods of eradication. With very few exceptions veterinarians have directed the work of eradication right down to the individual farm. But they have not dared to estimate what the results mean in real money to the South and in food for the whole country. They are too conservative for that. But even a real estate promoter would hardly be apt to put the figure too high.

One of the most widespread and costly diseases of domestic animals is tuberculosis. The cattle and swine industries suffer enormously year after year. The president of the Chicago Live Stock Exchange recently estimated that the loss every twelve months is equal to seventy trainloads of live stock of forty cars each, mostly hogs. Men in the Bureau of Animal Industry estimate that the country loses $40,000,000 every year as a result of this slow-moving but persistent plague. For years but small progress was made toward getting it under control, but during the past year the accredited herd system has been applied nationally by the Bureau of Animal Industry in coöperation with the state live stock sanitary authorities and the United States Live Stock Sanitary Association. The fight is now being waged on the principle that eradication of tuberculosis is an economic question. Money has been appropriated by Congress for the purpose of partly reimbursing owners of cattle whose animals have been slaughtered in the campaign for clean herds. Herds that come up to the requirements receive a certificate of approval from the Bureau. Coöperative work has already been started in forty states. After one year of work under the new plan 289 breeders have had their herds accredited. More than 1,400 herds have passed the first test. There are 3,320 grade herds and 867 herds of pure breds under supervision being prepared for the test. Altogether, there are about 6,000 herds under supervision, a fair indication that the system finally devised is making a strong appeal to cattle owners. As more states arrange to take advantage of Federal assistance it will be necessary for Congress

to appropriate more money to help reimburse owners for animals that must be slaughtered and to employ the necessary experts.

Of all the activities of the Government veterinarians that of meat inspection is probably best known to the public. This work will continue to be of vast importance so long as disease is so widespread among our farm animals. The food supply must be protected from diseased or otherwise undesirable meat. The great scope of this work of protecting the consumer's meat supply is evident when we consider that inspection is maintained at about 850 plants and that every year nearly 60,000,000 animals are given both the antemortem and postmortem examinations. The information obtained by the inspectors is not only useful in protecting the food supply, but it provides the most conclusive argument for increased work and expenditures in eradicating animal diseases. What we can afford to pay to eradicate them any man can figure out for himself when he knows that practically a quarter million carcasses are condemned every year as unfit for human food.

The battle against the outbreak of foot and mouth disease in 1914 is still fresh in the memories of stockmen. It cost the country millions of dollars to kill the infection, but as a result our herds are free from this destructive scourge. Several outbreaks have been stopped in the past and no one knows how many have been prevented from entering the country by our quarantine service. Right at this time there is an outbreak in England, but it is not probable that one droplet of the virus will get by our quarantine.

At one time scabies of sheep and cattle levied a big tax on the industry, but the parasite causing this disease is now pretty well under control. Milions of animals are inspected each year and several millions are dipped. Dourine, a dangerous disease of horses in large areas of the West, is being brought under control rapidly and the prospects are that it will soon be eliminated except on some of the Indian reservations, where the work is exceedingly difficult. Contagious abortion, which probably causes an even greater monetary loss among cattle than tuberculosis, is not yet well understood, but scientists of the Bureau are continually making investigations and tests with a view toward developing an immunizing agent or finding means for preventing infection.

This brief review of the work that has been done or is being done to protect the live stock industry of America can give only

a meager idea of the complexity of the job that is before our Government veterinarians who act as police and secret service, one might say, who guard our cattle, horses, hogs and sheep from alien enemies. To weaken this force would seem like an economic crime, but it is being weakened to a dangerous extent. For the last four or five years the Bureau of Animal Industry has been losing many of its very best men. They have gone into private biological laboratories, to serum-producing plants, they have taken up ranching or have gone into other commercial enterprises. The exodus has not been caused so much by the lure of the dollar as by the unceasing pressure of the cost of food, clothing and house rent. And when an old friend, a practicing "vet," says he is making as much in a month as he could make in a year if he were "working for the Government," some man is apt to wonder whether he is doing the right thing by his family, and finally concludes that he isn't.

But are we going to let a ten-billion-dollar industry run along without insurance?

OHIO STATE VETERINARY MEDICAL ASSOCIATION.

At the annual meeting of the Ohio State Veterinary Medical Association Dr. Case, Resident Secretary of the A. V. M. A., made a plea for new members for the national association. Secretary Mayo also spoke in behalf of the A. V. M. A., and a good number of applications were filled out at once, and many others were promised.

The "Buckeye Bunch" will make a good showing at the next meeting of the A. V. M. A. in New Orleans.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK CITY.

The regular monthly meeting of the Veterinary Medical Association of New York City was held in the lecture room of Carnegie laboratory on Wednesday evening, January 8, 1919, at 8:30 o'clock.

The president-elect, Dr. Cochran, was in the chair.

The minutes of the December meeting were read and approved.

The roll of members was called and changes of addresses noted.

The president, Dr. Cochran, thanked the association for the honor of electing him president and gave an interesting address on "The Value of Veterinary Associations." Dr. Cochran reviewed the early history of this association and the good work it had achieved since it was established in 1894.

Dr. Chas. H. Higgins, B.S., D.V.S., of Ottawa, Canada, was then introduced and gave an instructive and interesting address on "Veterinary Education and Control Work in Canada." The Doctor gave a history of veterinary educational work in Canada from 1862, when Drs. Andrew Smith and Duncan McEachran arrived in Canada from Dick's College in Edinburgh, Scotland, establishing the Ontario Veterinary College in 1862. In 1863 Prof. McEachran established the veterinary school at McGill University in Montreal, which continued until 1892. The Doctor stated that veterinary education is established on a firm basis in Canada at present, with two veterinary colleges under government control, the English school at Toronto, affiliated with the University of Toronto, and the French school, connected with Lavelle University. Dr. Higgins said there was splendid opportunities for veterinarians to engage in practice in Western Canada, especially in Alberta and British Columbia. The veterinary practice laws are excellent and fees good. The Doctor then gave an interesting history of sanitary control work in Canada, in which he has been actively engaged since 1892. In 1902 Dr. Rutherford was made head of the Health of Animals Bureau. Dourine had made its appearance in western Canada and glanders was spreading. The Doctor told of the first cases of dourine which were of an acute type. The later cases assumed a chronic form. Mange is controlled by dipping, using sulphur, linseed oil, and oil of tar. The control of hog cholera is radical: slaughter, disinfection, no hogs allowed on premises for three months and compensation by the government. No garbage is allowed to be fed to hogs unless cooked and a government license is required to feed it. Under these measures, the Doctor said, hog cholera is practically eliminated in Canada.

Dr. Higgins was identified with the first tuberculin testing of cattle in 1899. At that time great numbers of pure-bred cattle were being imported into Canada from England and Scotland. Tuberculin tests were used on these cattle, which were kept in quarantine three months after landing.

The Doctor gave an interesting account of the Pickton cattle disease which appeared in Nova Scotia in 1891. This disease attacked large numbers of cattle and was rapidly fatal, causing an œdema between the coats of intestines and inflammation of the liver. Feeding experiments were carried out by Dr. Osler, who found the disease was caused by the poisonous weed "Senecio Jacobæa," or ragweed. It was found that by putting sheep and goats to pasture they cleaned out the weed and the disease disappeared.

Dr. John De Vine mentioned that as there was some prominent visitors present whom we would be pleased to listen to, he would prefer postponing his talk on "Breeding Problems" until a future meeting.

The privilege of the floor was extended to the visitors present.

Capt. Otis A. Longley of San Francisco, Cal., gave an interesting talk on his experience as a veterinary instructor at Camp Greenleaf. He emphasized the establishment of a high standard of education in the colleges, and mentioned the vast difference in men under his command from the various colleges. The men were graded at the camp according to their personality, loyalty, ability and professional qualifications. He said that about thirty men were rejected and returned to civil life as unfit to be veterinary officers. The Captain stated that the men from New York were uniformly well up in professional attainments. He pleaded for a larger membership for the A. V. M. A. and said he had been instrumental in turning in over 400 applications from among the veterinarians in training at Camp Greenleaf to the last meeting of the A. V. M. A.

Captain Harry Ticehurst, Moosemire, N. J., told us of his experience of sixteen months' army work. The Captain's work was mostly at Newport News in mallein testing and inspection before exportation. He said they inspected and shipped as high as 1100 horses a day at times. The Captain said he had considerable hospital work at Newport News, where the best military hospital in the country is maintained. He was later appointed veterinarian at Camp Sheridan, where he had a number of veterinarians under his command. He was later made Division Veterinarian and ordered to prepare for overseas duty, but his orders were cancelled just before sailing.

Dr. J. P. Lowe was present and extended to the members an invitation to attend the annual meeting of the Veterinary Medical

Association of New Jersey, to be held at Newark on January 9. He assured the visitors a profitable and interesting meeting.

Dr. George G. Anderson, 417 West 49th Street, New York, was unanimously elected to membership in the association.

Dr. R. S. MacKellar proposed that a vote of thanks be extended to Dr. Higgins, Captain Longley and Captain Ticehurst for their contributions to the program of the evening. Seconded and unanimously carried.

No further business appearing, the meeting adjourned at 11:40 p. m. J. Elliott Crawford, Secretary.

The Editor of the Journal has been remembered with a unique Christmas card from Major Frederick Hobday, C. M. G., Editor of the Veterinary Journal (London), from No. 22 Veterinary Hospital, B. E. F., Italy.

NECROLOGICAL.

DR. F. P. M'CUSHING.

Dr. F. P. McCushing, of Keene, N. H., died January 5, 1919, as the result of an attack of influenza after having returned home from military service at Camp Greenleaf, Ga.

Early in October Dr. McCushing was commissioned a lieutenant in the Veterinary Corps, U. S. A., and had completed the prescribed course at the Veterinary Officers' Training School, with a rating which would have brought him a captaincy had the armistice not been signed when it was.

The Doctor was born in Keene, September 14, 1885, and graduated from the Keene High School in 1903. He was graduated from the University of Pennsylvania Veterinary School in 1907.

For several years Dr. McCushing was food inspector for the city of Keene; was a member of the Keene Council, K. of C., and of the Monadnock Club. He leaves two brothers and two sisters to mourn his loss.

The Doctor was a member of the A. V. M. A. since 1915.

DR. GEORGE W. GILBERT.

Dr. George W. Gilbert, of Bayport, Long Island, New York, met with a sad and distressing death on January 4, 1919.

While out on professional calls his automobile stalled and the lights went out. Dr. Gilbert proceeded to crank his machine, when another automobile came rushing up and struck his machine, knocking the Doctor against a fixed body, fracturing his skull and injuring him internally, from which he died an hour later.

Dr. Gilbert was a graduate of the New York College of Veterinary Surgeons, class of 1886. A widow and ten children survive him, the eleventh child, a son, died a few weeks before.

DR. F. C. GRAYSON.

Dr. F. C. Grayson, of Paxton, Illinois, died November 25, 1918. The records show that Dr. Grayson was an old subscriber to our official journal. So far as we know, however, he was not a member of the A. V. M. A.

IMPORTANT MEETINGS.

A conference of B. A. I. employees and state live stock sanitary officials engaged in the work of eradicating cattle ticks in the Southern States will be held in New Orleans February 11, 12 and 13, 1919. These conferences are well attended, excellent programs arranged and general participation in them by the members.

Coincident with this conference, the annual meeting of the Southern Cattlemen's Association, one of the most influential organizations of its kind in the country, will take place, when it is expected that the sessions of the association will be held during the mornings and those of the Bureau employees in the afternoons which will afford an opportunity for members of both gatherings to attend the sessions of each. This will be very opportune, as the interests both of the association and the Bureau men and state sanitarians are very closely allied, viz., the improvement of the live stock conditions, and especially those of the cattle, in the South.